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REVIEWS

Reminiscences of Australia, with Hints on the Squatter's Life. By C. P. Hodgson. Simpkin & Marshall.

THIS is another of those books which, written by practical men for the guidance of the future emigrant, are not without interest for the general reader. One who, like Mr. Hodgson, has travelled some thousands of miles in "the bush," and witnessed native scenes in endless variety, could scarcely fail to collect much information,—which, even when not novel, would be valuable as confirming the statements of previous writers. The author has both resided in the wilderness and been engaged on two exploring expeditions,—once in the society of Dr. Leichardt, whom he was compelled by a failure of provisions to leave,—and once in pursuit of that adventurous discoverer, when, as our readers know, he was thought to have fallen a victim to native ferocity. Mr. Hodgson's book is, every way, that of a practical man,—simple, unpretending, making no great pretension to literary merit—seeking only to detail facts in such language as first presented itself.

From Dr. Leichardt's journey, it seems ascertained that on the eastern part of the continent, and about 26° south lat., there is a range of hills running to the west, and transmitting several streams, not merely to the south, but to the north. It seems equally certain that the head of the River Darling must be sought in the River Condamine. Nor can there be any doubt that, at certain seasons of the year, extensive sheets of water may be seen,—though it is likely that they subsequently disappear by evaporation. The case is probably the same far west of the point (long. 150° east) where Mr. Hodgson separated from Dr. Leichardt:—

"That there are still some vast lakes in the interior I fully believe: what becomes of the enormous torrents that each little tributary assists to swell out? I have seen rivers flooded a mile over either bank, and running at the rate of six miles per hour for weeks and weeks; I do believe that they meet at some inland reservoir, and become stagnant, till either dried up by evaporation or absorbed by the thirsty nature of the soil—and this has always been the general mode of explaining the change of the north-west or hot and cold winds, blowing over large lakes or, *vice versâ*, dry and extensive plains."

It is certain that these lakes have no outlet to the south, or to the east,—or probably to the west; so that, if they have none to the north, in the five rivers discovered by Capt. Stokes and other officers of the Beagle, they must either not exist at any time, or be absorbed by the sandy plains and the solar rays,—as seems to be the case with Lake Torrens. It may, however, be doubted with what propriety the term lake can be applied to any transitory body of waters. As well might it be given to the inundations which periodically cover the lowlands of some countries. Such unauthorized applications of words, the definite sense of which has been long settled, ought strenuously to be resisted,—since their adoption would lead to a serious change in our geographical nomenclature.

The fossil remains so frequently discovered imbedded in the earth (generally on the banks of rivers), prove that Australia has been no stranger to the revolutions which have affected other portions of the globe. Those of gigantic animals—of a race now extinct—are not uncommon. If, however, we might trust to native description, some of these yet inhabit the interior lakes—monsters to us unknown:—

"I am informed," says Mr. Hodgson, "by two respectable witnesses, that unknown noises have been heard at night-time in the large water-holes. A gentleman residing on the Bundarra river relates a curious anecdote about the existence of these monsters. During the heavy flood of 1844, he was aroused by his servant, who brought intelligence of 'a large animal' having come up the river, making a tremendous noise. He went to the spot, which was only a few hundred yards from the house; and, to his astonishment, beheld 'a large animal,' with two white deciduous tusks, playing in the stream: at one moment visible, and immediately after diving under the water. While absent for assistance and arms, 'the animal' disappeared. Mr. R. Gore (a neighbour on the Downs, or River Condamine which divides the Downs from the 'swamps,' as they are generally called) informed me that being encamped at a very large water-hole on two successive nights he was awakened by loud and strange noises, like those caused by the revolutions of a watermill. He saw nothing; but was convinced the noise was caused by some animal. This was also during the same flood; and, as both rivers ran into the Darling or Murray, it was the most probable time for their appearance,—as they might be tempted by the immensity of water beyond their usual range, and retreat with the disappearing flood. Again, I heard from a Mr. Everitt, of New England, that, on a piece of *seal skin* being shown to the blacks, they asserted their knowledge of the animal. These reports are confirmed again by that of Captain Sturt, who mentioned having met with one black, who had travelled a long way from the north-west, and who said that there was a great lake abounding with monstrous animals. From all these accumulated accounts, I suspect a species of hippopotamus must be the owner of these fossils—though they are attributed generally to the 'Dinotherion Australe.' I tell the tales as they were told to me; and I do not believe them improbable. It is evident the blacks still fear to bathe in large water-holes, owing to traditions about some enormous animal; and moreover, some particular sheets of water are still regarded with superstitious awe. I have seen them horrified at my bathing in them."

We see no reason why the hippopotami should be less probable in Central Australia than in South Africa; and perhaps it will be found that the exaggerated accounts of the natives must be reduced to some animal of that class. But its suspected existence, even in the vicinity of settlements already established, must be held to be a serious drawback on colonial happiness. There is, however, a yet greater, in the venomous serpents which are everywhere found. The former objects of terror are huge in bulk, slow in motion, and loud in their approaches; but the latter are insidious,—come to your hut in a bundle of faggots, or creep in at the door, and hide in your bed. Their name is legion;—but all are not venomous. The diamond snake, from ten to fifteen feet in length, is not poisonous; but its bite is sure to be dangerous, from the size of its fangs. This may be called the Australian boa;—it is the largest yet discovered. The carpet snake is harmless; but the black and the brown, the yellow and the green, the whip and the zebra—not forgetting the deaf adder—are to be dreaded. Of some the bite is instant, of nearly all speedy, death. Of these animals, says our author,—

"I have met with several, and witnessed many wonderful and narrow escapes. A friend, who had been out shooting for some hours, coming home tired, without thought or reflection was on the point of throwing himself on a stretcher to rest, when he was suddenly pulled back by a bystander, who had observed a tremendous brown snake coiled up on the opossum cloak. He was horrified, but providentially saved. The snake, of course, was soon despatched. Another friend on a cruise, put his saddle down for a pillow at night as usual, and on lifting up the saddle-flaps the next morning, he observed a beastly deaf adder lying flat down. He soon dropped the saddle, and killed the snake. While giving our horses water one day, my cousin saw a black snake, half in and half out of the water; he shot it and put it upon an ant hill to watch the ants at work. While so engaged, its mate came at us, passing over my instep, in a state of great excitement: it was also shot. On going over the Main Range a deaf adder was observed, creeping on a poor quail which crouched on the ground, fascinated; we allowed the poor bird to fall a victim; and then struck at the adder. The blow did not take effect,—and the reptile sprang three feet at my friend, who escaped unhurt; the adder was subsequently killed. Again, being one day encamped on the Main Range, for the purpose of cutting bark with my brother and a friend, I had to go down to a little water-hole to fill the quart pots for tea; while stooping down to my task, an enormous black snake slid down the bank, quacking and hissing; before I could recover from my fright, he had passed over my arm, and up the opposite bank. I was too much terrified to shoot at him, though I had my gun at my side. Two more instances will suffice—a little child, the daughter of a friend of mine, playing on the verandah, was on the point of picking up what she thought a varnished piece of wood,—so flat and straight was it extended,—when her father called her back. The snake (for such the piece of wood turned out to be) basking in the sun, proved to be a large diamond snake about nine feet long. Again, I was sitting with my sister, after the children were put to bed, and having heard that a snake had been seen in the house during the day, we were frightened. While engaged in conversation we heard noises of 'Cah, cah, cah,' issuing from the rafters and shingles; and, to our horror, beheld a nasty yellow snake hanging down over our heads, as if about to spring upon us: up we started, a gun was soon brought to bear upon him, and he fell down; I found two mice inside him,—for which, no doubt, he had visited us."

Such hair-breadth escapes have been experienced by all wanderers and dwellers in the bush; and happy are they who escape so well, for the victims are many.—But he who makes the bush his home must be prepared, too, for other evils than these. Sometimes the drought is so long continued that not a blade of grass or drop of water is to be found for many leagues. Many horses, sheep, and cattle perish of hunger or thirst. Then, as the alternative of this plague,—

"The thunder-storms in Australia are tremendous, sudden, and frequent; in an hour the whole surface is covered with water, and little courses roll down the hills in torrents. I have seen cattle tracks, a little worn below the surface, carrying off the water; they become dry and crack; the next rain converts the crack into a fissure, which gradually widens and extends itself till it becomes a large gulley. On old used dray-roads the quantity of little streams is surprising, caused in a similar way. I have seen a thrice reflected rainbow during one of these storms I have seen whole forests denuded of every leaf, and as bare as a wood in the winter season in England. I have seen the grass beaten down so that not a blade could be seen erect, and the earth so full of little marks that I fancied a flock of sheep had been over it. This was caused by a hailstorm in the month of September. I have known a shepherd return home nearly dead, one mass of bruises and gore from head to foot, and forty of his flock actually killed on the spot. I have known a plain, sixteen miles broad, one sheet of water: to pass through which my horse often had to sink over his shoulder, and a little favourite dog had to swim frequently for an hundred yards. This may give some idea of our rains."

To this catalogue of miseries must be added the hostilities of the natives;—who cannot be expected to have much forbearance for intruders ever ready to knock them on the head:

"I have known," says Mr. Hodgson, "stations settled upon, by the proprietors of which it was enacted that the appearance of a black fellow should be his death-warrant;—well, what is the consequence? Every place has some peculiar claim to their affection, and, though black their colour, yet they have as keen and sensi-

tive a regard for the scenes of boyhood and the hunting-grounds of their sires, as ever white man felt for his mountains and vallies;—no wonder, then, that they long to revisit them,—and their piety is death. Exasperated, hurt beyond measure, is it to be wondered at that they seek retaliation?—their kangaroos have fled, their emus are dispersed, or become the prey of the white man's dogs. They must live; and a fine bullock or a few sheep are tempting feasts to an hungry stomach. They come, they see, they steal, and patiently await the consequences of their crime,—which is generally death to one or more of their number. Such causes are the precursors to an indiscriminate massacre; and revenge has been the cause of death to thirty-five white men in the districts of Moreton Bay and Darling Downs alone!"

That these men are susceptible of gratitude for good treatment, Mr. Hodgson gives an instance to prove:—

"I have known *one* exception: a philanthropist, indued with generous principles, and a pitying spectator of the unfortunate state of the Aborigines, occupied an extensive tract of country on the sea-coast, where the blacks are always allowed to be the most ferocious. By kindness, and a trifling supply of tomahawks, clothing, and meat, he won so much the simple esteem of his own tribe, that during all the three years, when others were constantly on the alarm for, or were actually losing, men and stock, he alone escaped. His care was to ingratiate himself with the native owners of *his own station;* and he succeeded so well that, if ever he lost anything, it was generally proved that a strange tribe had been the depredators, and his own immediately armed themselves to insist on a reparation of the injury or restitution of the property. Alone, unarmed, he is reported to have ventured into the midst of a large camp, and, without any molestation or question, to have seized and carried off an offender, who had stolen some blankets from one of his sheep-stations;—a bold thing to do, and an experiment dangerous for its novelty. To his pride, the guilty one proved to be a foreigner, on a visit to his own men."

Of the native superstitions Mr. Hodgson furnishes some new illustrations:—

"That they have some sense of a preternatural power is certain; but it is equally certain that their ideas on the subject are very limited, proceeding only from ignorance, superstition, and fear. I remember when the comet appeared March 2nd, 1843, that a general panic and wonderful terror prevailed amongst the blacks. The unaccountable monster, the novel appearance, caused an awful alarm. What could it be? What could it mean? They had heard stories of an old man (the planet Mars) who wore a red beard and was very 'saucy,' carrying off gins and slaying those that opposed him. They had heard of the great kangaroo (Sirius), who walked upon earth and devoured whole tribes in his anger; but *such* a spectacle they had never seen before, nor had tradition handed down aught respecting it. What could it be then? Their simple nature, owning the agency of a superior cause, asserted it to be a ladder, which the 'Kaiour,' or devil-devil, hung down from Heaven, that all brave warriors and renowned chieftains might ascend by it."

Of those connected with their funerals, the following is well worth quoting:—

"I never saw one; but the following anecdote, which I heard from the mouth of a Roman Catholic dignitary, and afterwards often corroborated by others, gives us a beautiful and poetical idea. On the demise of one of the tribe, his arms, war instruments, and personal property are placed, at sun-down, on a funeral pile, with the body: a circle is then described around the tomb, within which no one is allowed to intrude but the priest; who, when the setting sun proclaims the approach of evening, places a lighted torch in the hand, at the same moment igniting the pile: he waits till its flickering light vanishes; his eyes are then directed to heaven; and, on beholding the *first* star in the sky, he exclaims,—'There he goes with his fire-stick!'"

For many other illustrations of the moral and external aspects of a country which offers problems of such vast interest to the English inquirer, our readers may be referred to Mr. Hodgson's pages.

Modern London and the Modern English—[*Londres et les Anglais, &c.*] By Dr. Bureaud-Riofrey. 2 vols. Paris, Truchy.

We believe—although there is no admission in the title-page which suggests or confirms the suspicion—that we have already mentioned this work in the *Athenæum* [No. 915], though but in a few lines. Whether, however, this publication be a repetition or continuation of the volume there alluded to, there are reasons why the author's speculations may be deserving of a more especial notice than we gave them on that occasion. It has been long admitted that the remarks of intelligent and impartial foreigners on our character, institutions and modes of life, are among the best and most interesting subjects of instruction. It is so with those of Dr. Riofrey; who is deficient neither in candour nor acuteness of observation. He has had large opportunities of becoming acquainted with his subject—having resided many years among us in the public exercise of his profession, and diligently studied our history and manners. This is not, as our readers know, Dr. Riofrey's first work concerning London; but it is more interesting than its predecessor,—treating of a period in relation to which our sympathies are more active—and founded, as it necessarily is, on a more abundant collection of facts, inducing a fuller confidence in its general averments. We say *general;* for to some of the author's statements, and to still more of his inferences, we can by no means subscribe. He is often too theoretic—we might add, too visionary—for the practical taste of Englishmen. His work has another fault;—yet one which will be favourably received on this side of the Channel, however it may be regarded on the other. He forms too extravagant an estimate of the prosperity which we have reached as well as of the qualities which have enabled us to reach it. We do not believe that our statesmen have been quite so far-seeing, or our people so energetically systematic, as he represents them.

It is a fundamental principle of Dr. Riofrey's book, that proportioned to the advance of material prosperity is that of health, morals and happiness. The facts on which he grounds his reasonings have, for the most part, been furnished by common life. "In my opinion," he observes, "history instructs us much less by great catastrophes than by the study of social life. The thunder and lightning, indeed, compel our notice; while we are apt to overlook the plant that rises slowly out of the soil, yet enriches man with its fruits. My work on London exhibits society passing through a multitude of circumstances, generally unperceived, but really existing,—from a condition of unhealthiness to one of salubrity, from poverty to opulence, from oppression to liberty, from barbarism to civilization. For the most part," he continues, "men see facts only in their accomplishment. For them, the dial-finger marks the hour only when the bell strikes it. Thus it is that Europe, misled by the clamour against French ambition, is awakened to a sense of England's colossal power only when that power is consolidated. In this work I show the steps, slow but successive, by which the English have reached their high destiny."—"My readers will see England in continual advance, profiting by her very faults and errors. During the whole of the eighteenth century, England marches patiently and unfalteringly towards universal domination—her constant object. France being the only power in a condition to oppose her, on the humiliation of France have all her efforts been concentered. The struggle between England and France then appears, naturally, in every page of my book."

Here we have a striking instance of our author's visionary tendencies. He creates a bug-bear, and is frightened at his own creation:—what is worse, he would have France frightened too. He flatters himself that, should war be renewed between the two countries, he shall have done his own a service in opening her eyes to the power of the antagonist with which she will have to contend:—

I say it with regret,—England is not known. Between her and France the distance is immense. On the one hand there is a system ably conducted, and so interwoven into the remotest ramifications of the body social that there is not an Englishman, near or far, at home or at the antipodes, who does not concur in the triumphs of the mother-country;—none, at the same time, whom the mother-country does not protect.

Behold the other side! "In France, alas! there is little of patriotic unity. She is devoured by jealousy; nearly all her citizens are infected with this vice. They tear one another, and waste their strength in doing mischief to themselves. It is only the admission that God protects France which explains her existence, after so many faults indulged and mistakes committed." Let Dr. Riofrey be assured that he is looking through a distorting glass. That his country has committed many grave faults need not be questioned; but he may depend upon it, our own have been neither fewer nor less momentous. Jealousy and faction are quite as rife amongst ourselves as beyond the Channel. Nor is there between the Government and individuals, whether at home or abroad, that sufficient and indissoluble bond which so much excites his admiration. According to him, we are worthy of all respect—to be sedulously imitated by his countrymen, if they were wise—not for our horse-racing—not in the cut of a frock-coat—but in our patriotism and every other good thing. For sentiments so flattering to our national pride he is aware that he will be blamed by his countrymen, and charged with enthusiasm, *Anglomania*, and what not; but he praises us, he says, where we deserve praise,—not for *our* pleasure, but to stimulate *them* to follow on the same path—and, still more, to show them what sort of a foe they may one day have to encounter:—

If, in order to flatter the national vanity of my own people, I should underrate the population, valour, and power of a rival nation; if I should hold out the lure of easy conquest to my countrymen,—should I therefore be a better citizen? Would not the mischief of such a course be, on the contrary, incalculable? To undervalue the English would be a poor gratification, and a false patriotism. When Charlemagne decimated the Saxons who were taller than his sword was long, that great monarch proclaimed to the world the lofty stature of his enemies. Let all her greatness be conceded to England; and when we contemplate her strength, her unity, her constant energy and firmness, let us study therein the secret of our disasters in our struggles against her, and do justice, at the same time, to our own greatness in the reflection that France is, in spite of all these, the single power capable of contending against her.

London, our author says, is "the most healthy city in the world,"—and that "in spite of the humidity of its soil and the inclemency of its atmosphere." Let it not be forgotten that, in former ages, this metropolis was one of the most unhealthy on earth—the constant abode of the most fatal endemic diseases. How, then, has the change been produced? By widening the streets, says Dr. Riofrey,—labouring at drains and sewers,—constructing houses better adapted for animals having lungs,—opening new squares, and parks, and gardens, amidst the vast brick

wilderness,—introducing an abundance of good water,—and diffusing habits of greater cleanliness among the people. These, we acknowledge, are improvements in which the French would do well to imitate us—rather than by laying out racing-grounds or opening new shops for English fashions.

There is another subject on which we may justly accept the praises of our author. We are undeniably, and beyond all comparison, the *most practical* people on earth:—

The English nation has exhibited, in a certain sense, the history of every human want, and of the innumerable ways in which every such want is felt by individuals. She has provided for all by the aggregate intelligence of her generations—generations so faithful to their precedent, and yet so inventive and so progressive. In England, and in London especially, the very air is full of practical logic. It enters by man's every sense, and lies beneath his very tread.

But England has her faults, even in Dr. Riofrey's eyes. We are, he says, a people "more domineering than the Romans,"—"a nation who threaten the whole of Europe with subjugation. England is never satiated with conquest: her thirst grows with her efforts for its satisfaction. Having secured the empire of the seas, she aims now at that of the whole world." Witness our liberal policy in China, and recent moderation in the Punjaub!—Universal domination! How, in a country where none are compelled, and few choose, to be soldiers, are the necessary instruments to be found? Napoleon had a better notion both of our present and future policy than perhaps any of his people. After passing a just eulogium on the valour of our troops, he observes: "Mais, avec quarante-cinq mille hommes, vous ne serez jamais puissance militaire!" Whatever Dr. Riofrey may think, Napoleon is right;—and whatever he may think, multitudes among us rejoice that there is no chance of England's becoming "a great military power." We should rejoice yet more, if the majority of the French people were as moderate and rational on this head as ourselves. If "the tendency of England be to universal domination," certainly neither our actions nor our newspapers are echoes of the public voice.

The good sense of the following makes some amends for the fallacy of what precedes it:—

In London the people enjoy liberty as their birthright. There, each moves in his proper sphere unconstrainedly, noiselessly—with a dignity which is habitual; because he finds, in his respect for another's rights, the respect due to his own. In trade, commerce, the arts, the sciences, even in medicine, much may there be learnt; for there all the branches of human knowledge are related and progress together. The English are in advance of all other nations; because they are the boldest, most enterprising and most persevering experimentalists amongst the human race.

We cannot follow our author through his progressive sketch of London at different stages of its existence during the last two centuries. We can but glance at a very few of the more salient points of his descriptions. For many of them, he is indebted to other pens—so far at least as making the remarks of others the basis of his own, in confirmation or in contrast. Thus it is, that he transcribes from Montesquieu; whose 'Notes on London and the English' are well entitled to our attention. "When I go into a country," observes that profound thinker, "I do not inquire if the laws be good: there are good laws everywhere; but I ask if the laws it has be well administered." As he finds corruption everywhere, he has no difficulty in finding it amongst our magistrates—and his judgment is somewhat severe. He says "corruption infects all ranks. Thirty years ago a robber was hardly known in London; now there is nothing else. An Englishman must have a good dinner, a mistress, and ease." When these good things are easily obtained, all is well; but when his circumstances become too narrow for such indulgences, "he commits suicide, or takes to the highway." There is no doubt (Fielding and Hogarth and the novelists and dramatists of the period are our vouchers for the fact) that a full century ago, highway robbers did exist to an extent inconceivable in our well-regulated times. A more efficient police, and a still more remarkable improvement in the tone of public morals, have all but annihilated this evil.—The following text marks another prodigious advance since the days of the philosopher:—

There is nothing so frightful as the London streets. They are extremely filthy. The paving is so ill kept that it is scarcely possible to pass through them in a carriage—necessary to make one's will if it be a hackney coach. These vehicles are as high as a theatre; the driver higher still—his seat being on a level with the roof. They plunge into every rut; and make a jolting which distracts the head.

Montesquieu asserts, very coolly, that there was, in his day, no such thing as religion among us. Nor will he allow us to know what friendship means—at least, foreigners, he says, could never meet with any:—

Lamentable are the complaints of strangers,—especially of the French resident in London. They say they cannot make a friend—the longer they remain there, the fewer they have. * * How should the English love foreigners, when they love not one another? Why should they ask us to dine, when they do not ask their countrymen? We must do, then, as they do, live for ourselves; like them, care for no one, love no one, trust no one. We must take countries as we find them.

But for the contrasts which Dr. Riofrey finds between contemporaneous London and the London of Montesquieu, we should be little disposed to exhibit more of the latter's pictures. "Money," he says, "is, in London, the sovereign good: honour and virtue are little esteemed." The spirit of patriotism which the Doctor finds at the heart of England's greatness, was scarcely discerned in Montesquieu's time—at least by him. "A minister of state," he says, "thinks only of triumphing over his opponent in the lower house; and to bring that about, he would sell England and all the nations of the earth." Even the many brilliant things which he admits were done in England, were all done for love of money—not of reputation or of virtue. "In France," says Montesquieu, "extraordinary actions are performed with the view of squandering money—in England, with that of acquiring it."

After so much vituperation, it is pleasant to get Montesquieu on the article of our constitution:—

London is a villanous city, with very fine things in it. Liberty, in London, is the liberty of freemen. At this moment England is the freest country in the world—none of its republics excepted. * * If a man had as many enemies in England as he has hairs on his head, they could do him no harm.

After Montesquieu, came Voltaire; who is more favourable to the character of the Londoners, and the English generally, than his celebrated countryman. The truth is, the latter's standard of human merit was not quite so high as that of the former. Corruption in the great he looked upon as the most natural thing in the world,—inseparable from their greatness; though he held it incumbent on them to conceal as much as possible their ruling motive. Part of his time he spent at Wandsworth—which was then some distance from the metropolis; and part in Maiden Lane—then one of the most fashionable quarters of the town! How great is the change since the day when Pope, Addison, Prior, Bolingbroke, Swift, Lyttelton and Fielding were accustomed to meet in Bow Street!

Whatever may have been the defects or vices of English society during the eighteenth or nineteenth century,—they are all, in our author's judgment, more than counterbalanced by the National Genius. He dwells especially on the protection which the English government is ever ready, and has the power, to extend to the humblest of its subjects:—

At all times the English government, whig or tory, has understood the importance of protecting its people. * * It is assuredly a high distinction to belong to a country whose very name defends her distant sons. If a monarch should desire to confer on his subjects some personal dignity or title, he could do no better than this—to let it be known and felt that whosoever should attack one of his solitary subjects would attack the nation and himself. We read that, in the East, he who would travel securely must be furnished with a firman from the Grand Signior. So, the English government has given to its subjects a firman which insures them respect over all the world.

This book, we believe will do both good and evil in France. It is calculated to awaken some jealousies, while it extinguishes others. It gives force to the prejudices which it encourages by the candour of its attack on those which it disapproves.—We may add that, in his glance at the progress of our metropolitan institutions and national character, the author does not come so far down as to the end of the last century: but promises shortly to resume his "unfinished work."

Memoirs of the Reign of King George the Second. By Horace Walpole. Edited from the Original MSS. With a Preface and Notes by the late Lord Holland. 3 vols. Colburn.

THE republication of Lord Holland's edition of Walpole's 'Memoirs of George the Second' with no other variation than a few misprints, is one of the mysteries of publishing which it is not our office to explain. The disingenuousness of issuing to the world as a novelty a mere reprint of a well-known work is, however, a trade artifice which we are not, as having charge of literary interests, at liberty to pass over without reprobation.—It was commonly suspected that Lord Holland had taken rather a wide view of the powers of an editor—had omitted incidents and characters for reasons which the world generally would not have recognized as sufficient; and the few notes which he added have been considered meagre and unsatisfactory. For these reasons, we have been looking forward to a new edition of these Memoirs, restored to their integrity and elucidated by the large amount of information brought to light in relation to the period of which they treat within the last quarter of a century. To this spurious edition we owe, at least for the present, the disappointment of that expectation; and it is not easy to explain the amount of injury done to the cause of historical literature thereby.

As instances of Lord Holland's caprice, we may mention his deviation from the divisions originally designed by Walpole, and his omission of the mottoes, though clever and characteristic, which the author prefixed to those divisions. Thus, the first book was introduced by Oxenstiern's well-known question to his son, *An nescis mi fili quantillâ prudentiâ regitur orbis?*—"Know you not, my son, with how small an amount of wisdom the world is governed?"—The account of the year 1752, is headed by Strada's canon, *Pour être bon historien il ne faudroit être d'aucune religion, d'aucun pais, d'aucune profession, d'aucun parti*—"A good historian should be of no religion, no country, no profession,

and no party."—The administration of Mr. Pelham's feeble successors is not inaptly characterized by Cardinal de Retz's clever reflection, "Men are more influenced by examples of the past than by events of their own age. We become accustomed to what we see every day; and I know not that the consulship of Caligula's horse, had we lived in his day, would have surprised us so much as we imagine."

Some curious minor omissions in the body of the work will further illustrate Lord Holland's wilfulness. In the inquiry into the Westminster election of 1751, the printed Memoirs (Vol. I. p. 27), merely say, "Mr. Murray then advanced to the bar;"—but Walpole wrote, "Mr. Murray, with an air of determined triumph composed of something between a martyr and a coxcomb, then advanced to the bar." The determination to bring Murray on his knees to the bar, according to the printed Memoirs, "was proposed to Mr. Pelham in the lobby;" —but to this Walpole, in his MSS., had added, "by one who knew it would exasperate the Tories against him if he yielded to it, or the Whigs if he refused."—In the printed Memoirs the following character is given of Lord Egremont:—

"Lord Egremont, who was son to the great Sir William Windham, and grandson to the old Duke of Somerset, whose prodigious pride he inherited, more than his father's abilities, though he had a great deal of humour, had formerly been a personal favourite with the Prince, but had slighted that intimacy when Lord Granville his patron would not co-operate in the Prince's last Opposition."

To this Walpole had added,—"And when Mr. Pelham had incontestibly the ascendant. He was the best bred man in the world, but remarkably cruel to low women; not so apt to provoke men. He loved money more than veracity,—which was the most convenient qualification in the world to one that was fond of respect and hated a drawn sword."—The printed account of Lord Hartington and the Duke of Devonshire stands thus:—

"Lord Hartington and his father, the Duke of Devonshire, were the fashionable models of goodness, though their chief merit was a habit of caution. The Duke's outside was unpolished, his inside unpolishable. The Marquis was more fashioned, but with an impatience to do everything, and a fear to do nothing."

Before the last sentence Walpole had given a fuller developement of the Duke's character in these words:—"He loved gaming, drinking, and the ugliest woman in England, his Duchess; —on whose account he had resigned his employments to retire with her, and turned her head by breaking a promise he had given her of not marrying his son to Lord Burlington's daughter." The sketch of Lord Hartington also is more complete in the MSS.:—it stands thus, "The Marquis was more fashioned; but, with an impatience to do everything and a fear to do anything, he was always in a hurry to do nothing."

We have taken a few specimens of Lord Holland's omissions almost at random: we may add that his lordship seems to have been determined that they should never be supplied,—for he cut the passages out of the copy intrusted to his care. Fortunately, Walpole's rough copy was preserved from the scissors; and it is interesting, not only for filling the gaps made by Lord Holland, but also for illustrating Walpole's own fluctuations of opinion. His emendations and omissions are a little curious; but, in general, his afterthoughts appear to have been more merciful than his first impressions. Sometimes, it is not easy to assign a cause for the change. Thus, his reflection on the ostentation of petty courts, which is struck through with his own pen, appears to us worthy of preservation:—"In all countries, people make a parade of what they think most capable of striking foreigners with astonishment and respect. In some places, they show you false jewels, false bones, false relics. In Italy and Germany, little princes are proud of little armies, which ruin their subjects without being sufficient to defend them. When I was at Modena, the pomp of the Court stretched to one Swiss, one lady of the bed-chamber, and two regiments of guards."

It would be an abuse of the confidence reposed in us were we to make further extracts from an unpublished manuscript. We have quoted enough to show that the edition on which we have felt it our duty to animadvert is mischievous as being likely to delay the appearance of an edition which will offer to the public novel and interesting information.

The Story of Toby; a Sequel to "Typee." By the Author of that Work. Murray.

That "truth is strange—stranger than fiction" is an adopted dictum of which, notwithstanding its adoption, Mr. Herman Melville is not, it should seem, to have the benefit. His pleasant book on the Marquesas [see *ante*, p. 189] is, even because of the strangeness of its adventures, very commonly suspected to be a fiction, notwithstanding all the incidents which have either presented themselves, or been sought, to give it an air of truth. It is not many months since we announced [*ante*, p. 819] that the real Toby had turned up (in print, at least) a live and uneaten man; and to all the strangeness which had gained for the work wherein he disappeared the character of fiction, this new fact surely added that further strangeness—that "stranger"—which, on the authority of the adage, might have removed it into the category of truths. If the whole be an invention, however, it has been determined to "play out the play." Mr. Herman Melville is called in to attest the discovery of the Editor of the *Buffalo Commercial Advertiser*—just as it has been suspected that the Editor was called in to attest the discoveries of Herman Melville. There is a kind of "handy-dandy" in this mode of presenting the matter—a sort of illogical evidence—a species of affirming in a circle —which increases the puzzle. We do not undertake to light our readers through the mystery. All we can say as to the authenticity of Mr. Herman Melville's narrative is what we have said before—it *deserves* to be true—*si non è vero è ben trovato*. We vouch for the verisimilitude —but not the verity. Here, however, is a concluding chapter, added by Mr. Melville to his former work—containing the account, as taken down from Toby's lips, of the circumstances under which the latter separated from his companion, and left the island on which each of the two have since supposed the other to have furnished food for a Typee banquet.

Our readers will remember that Toby spoke, in his letter to the *Buffalo Advertiser*, of an Irishman with whom he had fallen in after his separation from Melville,—and who assisted him in returning to the ship:—

"He was," says Mr. Melville, "an old grizzled sailor, whom Toby and myself had frequently seen in Nukuheva, where he lived an easy devil-may-care life in the household of Mowanna the king, going by the name of 'Jimmy.' In fact, he was the royal favourite, and had a good deal to say in his master's councils. He wore a Manilla hat and a sort of tappa morning gown, sufficiently loose and negligent to show the verse of a song tatooed upon his chest, and a variety of spirited cuts by native artists in other parts of his body. He sported a fishing-rod in his hand, and carried a sooty old pipe slung about his neck. This old rover having retired from active life, had resided in Nukuheva for some time, could speak the language, and for that reason was frequently employed by the French as an interpreter. He was an arrant old gossip too; for ever coming off in his canoe to the ships in the bay, and regaling their crews with choice little morsels of court scandal; such, for instance, as a shameful intrigue of his majesty with a Happar damsel, a public dancer at the feasts, and otherwise relating some incredible tales about the Marquesas generally. I remember in particular his telling the Dolly's crew what proved to be literally a cock-and-bull story, about two natural prodigies which he said were then on the island. One was an old monster of a hermit, having a marvellous reputation for sanctity, and reputed a famous sorcerer, who lived away off in a den among the mountains, where he hid from the world a great pair of horns that grew out of his temples. Notwithstanding his reputation for piety, this horrid old fellow was the terror of all the island round, being reported to come out from his retreat, and go a man-hunting every dark night. Some anonymous Paul Pry, too, coming down the mountain, once got a peep at his den, and found it full of bones. In short, he was a most unheard-of monster. The other prodigy Jimmy told us about, was the younger son of a chief, who, although but just turned of ten, had entered upon holy orders, because his superstitious countrymen thought him especially intended for the priesthood from the fact of his having a comb on his head like a rooster. But this was not all: for still more wonderful to relate, the boy prided himself upon this strange crest, being actually endowed with a cock's voice, and frequently crowing over his peculiarity."

This old gentleman at once informed Toby that he knew all about the running away from the ship, and the presence of the fugitives among the Typees. "Indeed, he had been urged by Mowanna to come over to the valley, and, after visiting his friends there, to bring us back with him,—his royal master being exceedingly anxious to share with him the reward which had been held out for our capture. He, however, assured Toby that he had indignantly spurned the offer." It would seem, notwithstanding, that the Nukuheva courtier *had* that common complaint of courtiers deemed more civilized, "an itching palm,"—and that his motive for promoting the separation of Melville and his companion was the expectation of manœuvring two several rewards for two several deliveries—the success of the first being probably intended to be made an argument for raising the terms of the second. The price paid by Toby (five Spanish dollars) was, after all, not exorbitant for an escape from a Typee kitchen. He did his best, however, to include his comrade in his own evasion:—

"Jimmy now asked Toby whether he wished to leave the island; if he did, there was a ship in want of men lying in the other harbour, and would be glad to take him over, and see him on board that very day. 'No,' said Toby, 'I cannot leave the island unless my comrade goes with me. I left him up the valley because they would not let him come down. Let us go now and fetch him.' 'But how is he to cross the mountain with us,' replied Jimmy, 'even if we get him down to the beach? Better let him stay till to-morrow, and I will bring him round to Nukuheva in the boats.' 'That will never do,' said Toby, 'but come along with me now, and let us get him down here at any rate;' and yielding to the impulse of the moment, he started to hurry back into the valley. But hardly was his back turned, when a dozen hands were laid on him, and he learned that he could not go a step farther. It was in vain that he fought with them; they would not hear of his stirring from the beach. Cut to the heart at this unexpected repulse, Toby now conjured the sailor to go after me alone. But Jimmy replied, that in the mood the Typees then were they would not permit him so to do, though at the same time he was not afraid of their offering him any harm."

At length, Toby was persuaded to start for freedom,—relying on the promises of his guide that he would return for Melville,—and believing that, in any case, he could better save

his friend, by despatching relief to his assistance when himself amongst his countrymen, than by remaining behind with him. Accordingly, attended by a young Typee with a pig in his arms, the sailor and his mercenary patron set off together for the mountain:—

"You see what sort of a taboo man I am," said Jimmy, after for some time silently following the path which led up the mountain. "Mow-Mow made me a present of this pig here, and the man who carries it will go right through Happar, and down into Nukuheva with us. So long as he stays by me he is safe, and just so it will be with you, and to-morrow with Tommo. Cheer up, then, and rely upon me, you will see him in the morning."

When they reached the valley of the Happars—"The young Typee stuck to Jimmy like his shadow, and though as lively a dog as any of his tribe, he was now as meek as a lamb, never opening his mouth except to eat. Although some of the Happars looked queerly at him, others were more civil, and seemed desirous of taking him abroad and showing him the valley. But the Typee was not to be cajoled in that way. How many yards he would have to remove from Jimmy before the taboo would be powerless, it would be hard to tell, but probably he himself knew to a fraction."

At last, Toby and his companions came upon the valleys of Nukuheva, on one side of the bay, where the highlands slope off into the sea. "The men-of-war were still lying in the harbour; and as Toby looked down upon them, the strange events which had happened so recently seemed all a dream."—Then comes the sequel of this "eventful tale":—

"Toby begged hard for an armed boat, in which to go round to Typee and rescue me, notwithstanding the promises of Jimmy. But this the captain would not hear of, and told him to have patience, for the sailor would be faithful to his word. When, too, he demanded the five silver dollars for Jimmy, the captain was unwilling to give them. But Toby insisted upon it, as he now began to think that Jimmy might be a mere mercenary, who would be sure to prove faithless if not well paid. Accordingly he not only gave him the money, but took care to assure him, over and over again, that as soon as he brought me aboard he would receive a still larger sum. Before sun-rise the next day, Jimmy and the Typee started in two of the ship's boats, which were manned by tabooed natives. Toby, of course, was all eagerness to go along, but the sailor told him that if he did, it would spoil all; so, hard as it was, he was obliged to remain. Towards evening he was on the watch, and descried the boats turning the headland and entering the bay. He strained his eyes, and thought he saw me; but I was not there. Descending from the mast almost distracted, he grappled Jimmy as he struck the deck, shouting in a voice that startled him, 'Where is Tommo?' The old fellow faltered, but soon recovering, did all he could to soothe him, assuring him that it had proved to be impossible to get me down to the shore that morning; assigning many plausible reasons, and adding that early on the morrow he was going to visit the bay again in a French boat, when, if he did not find me on the beach—as this time he certainly expected to—he would march right back into the valley, and carry me away at all hazards. He, however, again refused to allow Toby to accompany him. Now, situated as Toby was, his sole dependence for the present was upon this Jimmy, and therefore he was fain to comfort himself as well as he could with what the old sailor told him. The next morning, however, he had the satisfaction of seeing the French boat start with Jimmy in it. To-night, then, I will see him, thought Toby; but many a long day passed before he ever saw Tommo again. Hardly was the boat out of sight, when the captain came forward and ordered the anchor to be weighed; he was going to sea. Vain were all Toby's ravings,—they were disregarded; and when he came to himself the sails were set, and the ship fast leaving the land."

Toby left this vessel at New Zealand; and, after some further adventures, arrived home in about two years after leaving the Marquesas.—We have only to add, for the sake of the purchasers of the former narrative, that this tale of Toby is printed as a few pages of addition—the paging continued on from the last of the original volume; and that they may complete their possession of this true history, or pleasant romance, (as the case may be,) for the small supplementary charge of threepence.

The History of the British Empire in India. By E. Thornton, Esq. Vol. VI. Allen & Co.

THE concluding volume of Mr. Thornton's 'History of British India' contains the most complete and in some respects the most impartial, history of the Afghan war which has yet been given to the public. We differ from him as to both the policy and the justice of the invasion; but fully agree with his views of the negligence and misconduct that led to the disasters by which it was followed. The causes of the war may be shortly stated. Persia, severely humbled in a recent contest with Russia, became a mere dependent on that power; and, at the instigation of the cabinet of St. Petersburgh, laid siege to Herat, one of the keys to the route between Persia and India. England sought to cover her frontier from prospective danger, by entering into alliance with the chiefs of Cabul and Candahar; but Dost Mohammed Khan, influenced by a Russian agent, rejected the proposal; and it was, therefore, determined to place on the throne of Cabul a chief more favourable to English interests. How does this differ in principle from Napoleon's expulsion of the house of Braganza, because the Portuguese court preferred the alliance of England to that of France? The question of legitimacy is beside the issue;—not merely because the European laws of succession are disregarded in the East, but further because, if hereditary claims were of force, the sovereign of Herat, being an elder brother, had a better title to the throne than Shah Shuja. Of all nations on earth, the English have the least right to draw distinctions between sovereigns *de facto* and sovereigns *de jure;* and in this very instance we had recognized Dost Mohammed as a lawful ruler, by sending an ambassador to negotiate with him a treaty of amity and commerce.

If there existed reasonable grounds for suspecting Russia of hostile intentions, Cabul was about the worst place in the world to select for the field of resistance. Eastern alliances follow the rule of the stronger: and if the Russians had a powerful army at Herat, the ruler of Cabul, whether Dost Mohammed or Shah Shuja, would have taken the course which seemed most likely to advance his own interests, without bestowing a thought on the obligations of treaties and alliances. Diplomatists greatly overrate their own importance;—the world is not ruled by red tape, and the march of events cannot be controlled by protocols. The obvious means for checking the hostile designs of Russia were a British fleet in the Baltic and another in the Black Sea,—keeping Odessa in alarm, and ready to open communication with the Georgians and the Circassians. Finland and Poland on one side, the Crimea and the Caucasian districts on the other, are vulnerable points,—where the presence of a British force would effectually put a stop to a Russian march on the Indus.

The Persians had given us cause of alarm by besieging Herat;—but had we not ample means of compelling them to raise the siege? The small force sent to occupy Karrack produced a violent sensation in Persia; a squadron anchored off Bussorah would have compelled the Shah to accept any reasonable terms that might be dictated. But Mr. M'Neill, our envoy in Persia, writes:—

"The failure of the missions from the Indian government from Kabool and Kandahar, and the success of the Russian negociations with the chiefs on our very frontier, must give the Shah a more exalted opinion than even he has hitherto entertained of the superior power of Russia as compared with that of England. He sees an unknown captain of Cossacks from the banks of the Volga or the Elba ride up to Kabool without pomp or retinue, and he sees him apparently driving out of Affghanistan the agent of the governor-general of India; and that agent Captain Burnes, who enjoys a reputation as high and as extensive as any officer who could have been employed upon that duty."

The failure of a mission may be attributable to the fault of an envoy or to the nature of his message; and, however high the reputation of Captain Burnes might have been, a diminution of his personal influence is assuredly no sufficient cause for commencing a national war. Why did we seek political alliance with Dost Mohammed? Avowedly, to erect a barrier against Russian invasion. But Dost Mohammed was as free to accept the alliance of Russia as of England. It was a fair trial of strength between the envoys of the two powers; and the Russians, being the more unscrupulous in their promises, carried the day.

On comparing the despatches of Mr. M'Neill from Persia with those of Burnes from Cabul, there is a very striking discrepancy, which well deserves attention. On the one hand, the Russians are represented as promising the Shah to establish his supremacy over Afghanistan; on the other they are said to have engaged to strengthen the power of Dost Mohammed by restoring to him the town and province of Peshawur. These two courses of policy are diametrically opposed to one another; and these contradictions show that it was clearly impossible for Russia to have the alliance of the Persians and the Afghans at the same time,—their political interests being at variance, to say nothing of the bitter religious animosities by which the two races are irreconcileably divided. We can find, then, no tangible grounds for the war, other than unnecessary fears of a Russian invasion, and the wounded vanity of envoys, either overreached by unscrupulous diplomacy or baffled by superior skill.

The original cause of war was at an end before the army of the Indus—as the invading force was rather Bonapartishly designated—was ready to march. The Persians had raised the siege of Herat before all the troops had been assembled at Ferozepore. An expensive farce was played in conjunction with the principal drama, by providing Shah Shuja with an independent army,—an army, indeed, so independent that it never could be depended upon. It was a sad incumbrance to the British troops during the whole advance; consuming their limited supplies—impeding their march—and provoking the hostility of the peasantry by its unlicensed outrages. The conquest of Afghanistan was as easily effected as that of Algeria in 1830. The only opportunity for a great exploit was offered at the storming of Ghuznee. The subjugation of the country was complete;—but, as in the parallel instance of Algeria, it was only then that the difficulties of the conquerors began.

The evening of the 1st of November, 1841, closed on the English in Cabul, indulging in as luxurious a dream of safety as if they had been within the precincts of Calcutta:—

"The morning of the 2nd November dissipated the spell—it broke with signals of violence and alarm. The city was in a state of commotion; the shops were plundered, the houses of the British officers attacked, and their servants everywhere insulted and threatened. Among the first of the houses assaulted were those of Sir Alexander Burnes and of Captain Johnston, paymaster of the Shah's forces. It is believed, that had the former officer acted with

decision, the outbreak might have been at once checked; but Sir Alexander Burnes forbade his guard to fire on the insurgents, and preferred trying the effect of addressing to them a speech. What were the arguments by which he sought to soothe into calmness the excited passions of desperate men can never be known, for his powers of moral suasion failed, and he perished in a parade of magnanimous forbearance. With him fell his brother, Lieutenant Burnes, of the Bombay army, and Lieutenant William Broadfoot, of the Bengal European regiment—an officer whom all reports unite in eulogizing, and whose life was dearly paid for by his assailants, six of whom met destruction from his hand before it was paralyzed by death. The sepoys who formed the guard of Sir Alexander Burnes and of the treasury fought nobly, so soon as they were permitted to fight, and manifested the firmness and fidelity which the native soldier has so often displayed in the cause of the government whose 'salt he eats;' but they were overpowered by the numbers which unthrifty delay had permitted to accumulate, and with their lives they surrendered their trust."

During the two months that followed this outbreak, the commanders of the British forces at Cabul showed neither the courage to fight nor the sense to fly. There is every probability that the display of some energy early in November would have averted all the disasters of the ensuing January:—it required the accumulated blunders of the interval to destroy the *prestige* of the British name. Some blame has been cast upon Sir William Macnaghten for listening to the insidious proposals of Akbar Khan; but the precious time which had been lost rendered negotiation the only resource available. His best vindication will be found in the account of the council of war which was held a few days after his death—when the Afghans offered far harsher terms:—

"Major Eldred Pottinger, who had consented, at the urgent request of the general, to act as political agent, objected, and a council was summoned to consider his objections. It consisted of General Elphinstone, Brigadiers Shelton and Anquetil, Colonel Chambers, Captain Bellew, and Captain Grant. To these officers Major Pottinger opened his views, avowing his conviction that no confidence could be placed in any treaty formed with the Affghans, and that to bind the government of India by engagements to evacuate the country, to restore the deposed Ameer, and to pay a sum amounting to fourteen lacs of rupees—for this formal part of the arrangement—was inconsistent with the claims of public duty. Entertaining these opinions, the only honourable course, in his judgment, was either to hold out to the last at Kabool, or to endeavour to force a way to Jelalabad. Major Pottinger appears to have found no support in the council. One and all declared that neither branch of the alternatives suggested was practicable, and that it would be better to pay any sum of money than to prolong hostilities. It was resolved, therefore, to accede to the demands of the enemy; and had they been ten times more unreasonable, and a hundred times more humiliating, probably the same determination would have been adopted."

The disasters of Cabul were rendered more signal by their contrast with the glorious conduct of Sale's heroic brigade at Jelallabad. We have too recently adverted to this bright exception to the misconduct of the war to permit our describing it again. We will say only, that the commanders at Cabul had larger resources at their disposal, and far better means of defence, than Sale;—but these were lamentably wasted and thrown away.

The reconquest of Cabul, and the liberation of prisoners, effected by Generals Nott and Pollock, retrieved the honour of the British arms. Nott, when ordered to retire from Candahar, made characteristic reply, that he was *preparing* to retire *via* Ghuznee and Cabul. But though Lord Ellenborough had no share in the merit by which the war was concluded, he took a considerable portion of the praise. His grandiloquent proclamations have afforded to the world a pretty equal share of amusement and amazement; while his pompous pageants threw an air of ridicule over the whole series of events:—

"One act, marked by singularly bad taste, was threatened but not performed. It was publicly intimated to be the intention of the governor-general to parade the prisoners for exhibition at a grand military show to be got up at Ferozepore. The motives which led to the abandonment of the design are not known; and in the absence of authentic information, it would be worse than useless to attempt to conjecture them. It is well that our national reputation escaped the stain which would have been incurred by a renewal of one of the most barbarous practices of bygone times, in the production of an array of captive princes to grace the triumph of conquerors. The pageant, however, took place, though the actors chiefly relied on for attraction were withdrawn. Still it seems to have been a showy spectacle; and, perhaps, the stage of Drury Lane Theatre has not often presented anything better calculated to please the 'children of a larger growth,' who delight in such displays. There were painted elephants, triumphal arches, waving banners, and roaring artillery. The curtain had fallen on the tragedy, and, in accordance with theatrical usage, a splendid pantomime followed. This latter performance, it is to be presumed, afforded gratification to its contrivers; and if it effected this, its object was, without doubt, answered. And thus, with masking and mummery, terminated a war more calamitous than any which Britain had previously waged in the East—a war, the termination of which, but for the noble spirit evinced by those intrusted with high military command, would have left the name of our country a by-word of reproach; would have roused every unfriendly state to active hostility, and have placed in mortal peril, not merely the supremacy, but the very existence of British power in India."

Long before the termination of the Afghan war, the Russo-phobia in which it originated had sunk, with other popular delusions, into oblivion. No barrier treaty was concluded with Dost Mohammed; the safety of Herat was left to the care of its rulers; and the court of Persia was permitted to indulge in any dream of Afghan conquest which had charms for the vivid imagination of the Shah. It was, in fact, proved that we had acted on false information from beginning to end. Our accounts of Russian policy and intrigue were self-contradictory,—our fears for Herat groundless. All that had been told us about the unpopularity of Dost Mohammed, and the willingness to receive Shah Shuja in Afghanistan, proved to be utterly false; and we found that we had spent blood and treasure in the exhibition of a series of mistakes which the exercise of a very small portion of common sense would have detected at the outset. The moral is, that war is a dangerous game to play at, particularly when the cards are held by rash and inexperienced dealers—that a prompt recourse to hostilities is not always the best solution of the difficulties of diplomacy;—and that king-making, though it has proved a lucrative trade in Hindústan, is not quite so promising a speculation west of the Indus.

In his concluding volume, as in his earlier ones, Mr. Thornton's views are too evidently taken through the atmosphere of Leadenhall-street. His work has too much the appearance of an elaborate vindication of the Court of Directors:—but, with this exception, he is generally a fair writer—and he is always a pleasing one.

Life in the Wilderness; or, Wanderings in South Africa. By Henry H. Methuen. Bentley.

When will some adventurous traveller succeed in giving us an insight into *Central* Africa? Of the Southern and Northern parts of that vast continent, we have no lack of information; but the centre is as much unknown as that of Australia. Yet, there are no physical difficulties in the way (from the south, at least) into the interior greater than those which have been encountered in other countries: though scarcely a traveller contrives to ascend higher than the 24th degree of south latitude. Even Mr. Methuen acknowledges that the obstacles in question are far from insuperable:—

"It is much to be regretted that, since Dr. Andrew Smith's expedition, nothing has been attempted by the public towards clearing up the mystery which still envelopes the central regions of South Africa within the tropics. As the traveller advances north, the country increases sensibly both in beauty and interest; vegetation assumes a bolder and more tropical character; boundless forests succeed to the naked and parched deserts; while to the east, vast mountains, clothed at their bases in luxuriant foliage, mingle with the clouds; water becomes more abundant; and wild animals, in infinite variety, afford to the naturalist a most delightful and constant source of entertainment. Nor need the explorer apprehend extreme danger from the native tribes, which in general welcome the visits of white men, being desirous of bartering their commodities, and foreseeing the advantages which the opening of a trade would introduce amongst them. Climate would be his greatest enemy; and even this difficulty might be materially counteracted, under Providence, by judicious measures."

There can be no doubt that *all* the exploring expeditions which are, from time to time, undertaken are ill planned or ill executed. None could be worse, in either respect, than Mr. Methuen's. Not that he is deficient in enterprise, courage, physical endurance:—on the contrary, he has all these valuable qualities in a high degree. But, from the very first, his preparations were inadequate to the object which he had in view, that of penetrating within the tropics; and he was unfortunate in the choice of his subordinates. We may add, that his mind is not sufficiently well stored to render his observations instructive. Hence it is, that he "professes to give neither an account of regions hitherto undiscovered or undescribed, nor a narrative of elaborate and scientific research." Yet, though his volume must in these important respects disappoint the expectations of readers who are already tolerably acquainted with South Africa, we will not deny that it contains matter worthy of perusal. Though merely "a simple and faithful record of the various incidents which befell himself and his party during an eight months' journey in the wilds of South Africa,—where the traveller must mainly depend on his rifle and horse for subsistence,"—it contains some animated scenes, natural descriptions, and allusions to manners, which will be found to interest alike the geographer and the general reader. True, the author can handle the gun much better than the pen; yet, as he made notes at the time, his descriptions are sometimes both graphic and vivid,—though too brief.

Mr. Methuen and his party left Graham's Town at the close of April, 1844; and soon came into contact with the Caffirs, to whose plundering propensities he seems to be more indulgent than travellers in general:—

"Every Caffir," he says, "must purchase his bride by so many head of cattle; and what stronger inducement could be held out to a poor man, young and of a dauntless spirit, to take part in a *border fray*—considered honourable among his tribe—than the hope of winning by its means the object of his attachment? What exploits did not the knights of chivalry perform, instigated by a similar motive! It is true, the tender passion may not be accompanied in the savage by the same fine sentiment, but it affords as strong and wild an impulse to action. Of the extent of their depredations some notion may be formed by a statement, which I have heard many farmers make, that, though horses now abound in Caffir land, there are a few cases on record of their even purchasing one, and the animal was formerly unknown there."

The mischief, however, would be much greater, were it not for a tribe of herdsmen, who at once hate and fear the Caffirs—and not without reason :—

"To the Fingoe herdsmen they bear a deep-rooted hatred. These persons were their slaves till released in the late Caffir war, and taken under British protection, from which time they have resided in the colony; and, from the reciprocal aversion between them and the Caffirs, are the more vigilant and faithful in protecting the flocks committed to their care. In aspect they much resemble the Caffir, but differ slightly in language. The management of matters on the frontier is very difficult: the old law went no farther than to enforce compensation, or a restoration of the property, where it could be traced into Caffir land. The farmer having thus far pursued his stolen cattle, was obliged to stop and appeal to Government, when the chief, into whose territory the thieves had retreated, was compelled to make the loss good. The chiefs could always restrain their subjects if they chose, and therefore deserve to be made responsible. By the new law they must also surrender the offenders up to justice—an excellent alteration of the old system."

In the course of this work, we meet with many gratifying proofs of the progress which civilization is making amongst the native tribes of Southern Africa. During the last war, the Caffirs sent many of the colonists' wives and children uninjured into Graham's Town. The Korannas, the Namaquas, the Griquas, all bear testimony to this cheering fact. All have a kind of growing notion that England is destined to have the upper hand on the African continent. The Griquas found an evidence of that superiority, even in our knowledge of harmony :—

"The Griquas were enchanted by the notes of an accordion, which we had with us: the night had begun; it was extremely cold; we all sat in a circle round the fire, and never were flames reflected in more brilliant black eyes, than in those of the children, whose glances were intensely fixed on the mysterious instrument. One man sagely remarked on hearing it, 'Well, the English will always be masters!'"

Of Kuruman, the missionary metropolis, where Messrs. Hamilton and Moffat are located amongst the Bechuanas, we have this promising account :—

"Here we found Messrs. Hamilton and Moffat, both in good health, and active as ever in their sphere of usefulness and benevolence. Enduring, at the commencement of their ministerial labours, hunger, thirst, heat and cold, privations of all kinds, and living in constant danger of death, both from men and beasts, they persevered with a resolution and faith, reminding one of the apostolic times, and their efforts have been blessed with success. They now have few difficulties to contend with. Possessing comfortable cottages, built after the Dutch model, with no upper story, walled and well-stocked gardens, and all necessary furniture, they live independent of, and cut off from, the civilized world,—beloved by the Bechuanas, who are visibly improving under their teaching. There is a chapel here, built of stone, and thatched, capable of containing three hundred persons: the body of it is provided with moveable benches and a pulpit. This building and the cottages are all results of missionary labour,—each missionary learning some useful trade before entering on his office. The appearance of Kuruman (*englice*, the tortoise) is very pretty; a broad grass walk dividing the cottages which occupy the one side from the garden, a rivulet, and a rank of drooping Babylonian willows on the other."

One striking characteristic relating to this people may be mentioned, as it confirms a statement of Herodotus [lib. ii. cap. 35]—that the men seem to have exchanged duties with their women;—the former remaining at home to nurse and sew and cook, while the latter perform the agricultural labours out of doors. When a battle impends, however, the sexes resume their proper stations,—the spindle making way for the lance and musket. They are, doubtless, a branch of the Ethiopian Troglodytes, so famous, and often so fabulously described, in antiquity.

Mr. Methuen gives some good descriptions of African animals;—a subject for which his disposition and habits qualify him. We extract the following :—

"Many are the extraordinary anecdotes related of the baboon. One was told me by Mr. Moffat, of a Koranna, who possessed a tame baboon, which, in common with all the monkey race, entertained an intense dread of snakes; its master, from mere wantonness, forcibly entwined a dead snake round the baboon's neck, when the animal sat motionless for upwards of an hour, stupified with fear, and, on the snake being removed, stole timidly into the hut of the Koranna. After a short lapse of time, the baboon was, according to custom, called on by its master to scratch his head, but, although summoned several times in an angry voice, it refused to move. The Koranna rose and struck it with a stick, and immediately the enraged and aggrieved animal sprung upon him; the neighbours, hearing the scuffle, ran to see what was the matter, but could distinguish nothing through the dust raised in the interior of the hut, except hot cinders, which were kicked about in all directions from a fire-place in the centre of the abode. The screams of the man and the baboon were intermingled, till at length the latter dashed out through the bystanders, and escaped to some mountains. The Koranna had been seriously bitten in the encounter, and was some weeks in recovering; but ultimately regained his strength, and, bent upon revenge, scoured the mountains in search of his antagonist. He at last descried his baboon, which he could discern from any other, peeping over a crag, and levelled a gun at him; but the animal instantly withdrew his head, and held forward one of his companions as a target, instead of himself, chattering loudly as in defiance,—so that the man was compelled to return, foiled and disappointed."

The chameleon,—an animal so long deemed fabulous,—figures also in these pages :—

"The Hottentots captured a chameleon. Whether it be true that they can assimilate their colour to the foliage of the bush on which they cling, I cannot say; but this one so exactly resembled it, that it was extremely hard to be distinguished. It was carried to the waggons, suspended by the neck like a malefactor, and grew not only black in the face, but in the body also, changing to different shades of green. Its length might be three inches: there were two broad fingers on each foot, with rugosities on them, for enabling the creature to adhere tightly to branches; its eyes, also, were most singular; they were hazel-coloured and small, situated on prominent moveable globes, as large as green peas, and one of them was often turned completely backward, while the other was looking as much forward."

We have many descriptions, too, of the rhinoceros, hippopotamus, crocodile, and other monstrous inhabitants of the African deserts and rivers,—not forgetting the lions, hyænas, and serpents, which render travelling in such regions neither agreeable nor safe. More is, however, to be apprehended from an enraged buffalo than from any of them all; and our author had more than one escape from this formidable ranger of the forests.

Our author's good humour, his patient and even cheerful endurance of privations and dangers, make of him an agreeable companion. As he seems ignorant of mathematics and independent of scientific instruments, we have no means of knowing how far he penetrated. He does not appear, however, to have reached a higher latitude than 24° south,—perhaps not so high. His want of practical knowledge in this respect is unpardonable in a traveller;—since a few hours' conversation with any naval officer would have supplied him with sufficient for his purpose.

POVERTY.

Where are now the friends who came
  Round my board with eager eye?—
Fortune shines no more the same,
  Care is standing grimly by!
And I gaze on vacant places,
Where there should be smiling faces:—
  Surely Friendship cannot be
  Scared at sight of Poverty!

Where is now the dame I knew—
  Eyes of Heaven, skin of snow?
Love can never be untrue,
  E'en if Friendship serve me so!
No!—she'll come, that I may borrow
From her lips a balm for sorrow:
  Friends may falter, Love will be
  Alike in wealth or poverty!

Friends and sweethearts, quickly come,
  Cheer me in the hour of ill!—
Creeping things that decked my home
  Twine around the ruin still.
Alas! Despair the story telleth,—
"Constancy but seldom dwelleth
  With such friends as clung to thee
  Ere thou knewest Poverty!"

Lone and stricken, here I stand,
  Desolation 'neath my roof;
They who owe a helping hand
  Calmly, coldly stand aloof.
Like the timid field-bird fleeing
When a tattered garment seeing,
  Craven-hearted friends will be
  At the sight of Poverty!

Friendship! thou art like that flower,
  Sweet and fair to gaze upon,
Opening at bright morning's hour—
  Closing with the setting sun;
And thy heart (as *I* have felt it)
Ice, that needs a *sun* to melt it.
  Fair—but false—thou wert to me
  Ere I tasted Poverty!

Love! thou'rt like the hothouse plant
  That in warmth can live alone;
From the hearth that knoweth scant
  Love, alas! hath quickly flown.
Let it feel but wintry weather,
Soon is rent its faithless tether:—
  Ah, fond heart! I deemed for thee
  Love a gem in Poverty!

False friend! thou hast fickle proved,—
  Still I mourn thee as a brother:
Mistress! whom I fondly loved,—
  Like a lone distracted mother
O'er her lifeless baby groaning,
Thy dead love I'm weakly moaning.
  God!—that I should live to see
  Such a curse in Poverty!

ALFRED WAYMARK.

FOLK-LORE.

Superstitions respecting Bees.

Some years since, a gentleman, at a dinner table, happened to mention that he was surprised, on the death of a relative, by his servant inquiring "Whether his master would inform the *bees* of the event,—or whether *he* should do so." On asking the meaning of so strange a question, the servant assured him that bees ought always to be informed of a death in a family,—or they would resent the neglect by deserting the hive. This gentleman resides in the Isle of Ely—the anecdote was told in Suffolk; and one of the party present, a few days afterwards took the opportunity of testing the prevalence of this strange notion by inquiring of a cottager, who had lately lost a relative, and happened to complain of the loss of her bees, "Whether she had told them all she ought to do?" She immediately replied, "Oh yes:—when my aunt died, I told every skep (*i. e.* hive) myself, and put them into mourning."

I have since ascertained the existence of the same superstition in Cornwall, Devonshire, Gloucestershire (where I have seen black crape put round the hive, or on a small stick by its side), and Yorkshire. It probably exists in every part of the kingdom. I should be glad to ascertain whether it prevails in Wales;—though, from its being known in Cornwall, I have little doubt that its origin is earlier than the Saxon invasion. You can probably also inform me whether this custom be known on the Continent of Europe. The mode of communication is by whispering the fact to each hive separately.

I believe there are many other singular notions afloat as to these insects. In Oxfordshire, I was told that if man and wife quarrelled, the bees would leave them. The account of their generation from the blood of a calf leads to the beautiful episode in the 4th Georgic.

I have not had (owing to my profession) much leisure or opportunity for inquiries into these matters; but I think the suggestion of Ambrose Merton so excellent a one that I have forwarded the above matter rather to *elicit* than communicate information. The same gentleman to whom I have above referred as testing the story of the bees, is often requested at the *Vernal Equinox* to allow his ash saplings to be split, for the purpose of passing ricketty children through them at sunrise. I have seen five or six trees in one year that have been so split, and bound up again; and if the spell were effectual, the cures should be numerous,—for all the trees had recovered.

W.

Bees, as the only insects which may be said to be domesticated, necessarily play an important part in Popular Mythology; and from their living in communities and under the dominion of a sovereign, they appear in such mythology closely connected with the Elfin people. This resemblance extends to their origin. For, as the dwarfs are said to have sprung from the putrefying corses of the giants, so, as our correspondent justly remarks, the bees are represented as having their origin in the corruption of the body of a young bull—"Apes nascuntur ex bubulo corpore putrefacto," to use the words of Varro. Hence the supposed connexion between Apis, *a bee*, and the Egyptian Apis; and the importance which has been attached to the discovery, mentioned by Eccard, of a golden bull's head and some hundreds of golden bees in the tomb of King Childerick, at Tournay.

With regard to the custom of announcing to the bees the death of the head of the family, it may be observed that it prevails in Normandy,—where it is currently believed that the bees would certainly take their departure if not duly informed of such an event, and if their hives were not decorated with some sign of mourning. In that country, as in some parts of England, it is believed, also, that bees will not admit of being bought or sold—they can only be acquired by exchange; and that stolen bees never remain with the thief. To kill bees unnecessarily is sure to be followed by some misfortune; and the Norman peasant is firmly persuaded that, if any one swears in the p resence of the bees, their stings will instantly punish such an infraction of the Third Commandment. In Germany, on the death of the master or mistress of the household, the hives must be moved or the bees will desert them,—and the wine casks must be made acquainted with the misfortune by being struck three times, or the wine will disappear; while in Lithuania, such an event is announced to the horses and other cattle—and also especially to the bees, *by jingling with the keys*—otherwise the cattle would perish and the bees desert their hives.

Devonshire Legends.

Great numbers of your readers must, I am sure, see with delight that you have devoted a corner weekly, to preserve the traditions of our forefathers —which without such aid would soon pass away and be forgotten. The tales to which the generation now past middle-age listened with terror and delight, no longer excite and terrify our children; these are taught to laugh at what our forefathers firmly believed to their dying day. The little country parish of Rattery in Devonshire, as well as the adjoining ones, was full of tales of "Folk-Lore"—as you expressively call it. Not a cross-road in the country lanes but had—and still has in the minds of the old—its tale of ghosts, or, as they call it, "wishtness." On one of these, a sow and young pigs used to walk about at midnight—on another a horse without a head. In more than one, the devil, dressed in black, with a long tree on his shoulder as a hunting pole, figures as following on foot a pack of black hounds in chase of a spirit; and I knew a man who, returning from a late visit one night, saw, in a lonely lane, such a cavalcade pass him (though he heard not a sound) as he stood up in a gateway. Fire gleamed from their eyes; and when they arrived on the bank of a river (the Dart), they gave a dreadful howl, fire proceeded from their mouths, and they all vanished. Ask an old inhabitant why that wood above Marley is called Wisht-hound Copse; and he will tell you it is because it used to be so haunted:—or why a cross-road on the top of a neighbouring hill, where grow a few stunted firs, is called Hound Head; and he will give a similar reason. The church which now stands close to the village was intended to have been built a mile off; but tradition says that as fast as the workmen built it up by day, it would at night be carried off by invisible hands, and placed, in the same state, on the spot where it now stands. The tower of, I think, Ermington Church, which stands about three miles on the road from Totness to Yealmpton, leans almost as much as the tower of Pisa;—tradition says it was knocked on one side by the devil flying against it.

Caverns and holes in rocks were, in my childhood, the haunts of fairies, or *piskeys*, as they are called; and many a time have I, even in the day time, been afraid to go near the piskies' holes. There is a hole which still goes by that name—though its little inhabitants have fled and left it to be occupied as a storehouse of turnips for the cattle in winter. Ask any old man you meet with in the parish mentioned, and ten chances to one he has been piskey-led in crossing a field after dark, and could not find the gate until he turned the sleeve of his coat, or some other thing, inside out.

It is an old saying there, that bees die as soon as the master is dead, if on the body being carried out of the house some one does not whisper into the hive "The master is dead." Inquire of fifty old people in that parish, and not one but will tell you of an instance of it within his own knowledge. Witchcraft is still firmly believed there. I could name two persons who were believed to be undoubted witches. One of them had an evil eye (or a cast outward); and none who met her would let her pass on their left side, lest she should have power over them. The old woman who laid her out at her death, told me she was not a witch after all; because there was wanting an infallible sign—breasts under her armpits, which all witches have to suckle toads.

Much learning was displayed by a correspondent of yours a week or two ago, as to the reason of the ash being used to pass children through; but the most probable one seems to be, that the ash splits easiest and grows over soonest. A bramble growing in the ground at both ends was used, in the above parish, to pass children under, to cure them of boils —called there, blackheads. I was subject to this complaint in infancy,—and can remember being so served: and, whether that was the cause or not, I have had nothing of the sort since.

The legend about the dock was also common there,—but the lines were different:—

> "In dock, out nettle sting, nettle stinged me,
> If thee do's n't cure me, I will kill thee."

This is founded in truth;—for the sting is almost instantly cured by rubbing the part with the young centre leaves bruised.

The legend about the cuckoo is similar to what you have mentioned:—

> In March the guku beginth to sarch;
> In Aperal he beginth to tell;
> In May he beginth to lay;
> In June he alterth 'is tune;
> In July away a dith vly.

I think volumes might be filled, by any one who had leisure, inclination, and ability, by traditions of witchcraft, wishtness, wisht-hounds, &c., collected in the above and neighbouring parishes:—but having been absent for twenty years, they were fading from my memory until your publication revived them.

L.

Charms.

In the West of England we have a version of the Charm for prick by a thorn, different from that given in the *Athenæum* of the 19th of September. It is this:—

> Christ was of a virgin born,
> And he was pricked by a thorn;
> And it did neither *bell** nor swell,
> As, *I trust* in Jesus this never will.

The following is a common Charm for the cramp in both Devonshire and Cornwall:—

> Cramp—be thou painless!
> As Our Lady was sinless
> When she bare Jesus!

And for a scald or burn, I have been told this,—although the act of telling destroys the charm:—

> There came three angels out of the West,
> One brought fire, and two brought frost;
> Out fire, and in frost,
> In the name of Father, Son and Holy Ghost.

We have already noticed the light which a collection of such Charms as these is calculated to throw on many obscure points of Popular Mythology. When referring to the two Charms of the tenth century mentioned by Grimm, in his 'Mythologie'—and which form the subject of a dissertation by him in the 'Transactions of the Royal Society of Berlin,'—we omitted to mention that one of them, which is for the cure of a sprain, is clearly an early version of that published by Chambers, in his 'Popular Rhymes, &c., of Scotland:'—

> The Lord rade
> And the foal slade;
> He lighted
> And he righted.
> Set joint to joint,
> And bone to bone,
> And sinew to sinew,
> Heal in the Holy Ghost's name.

In the old Charm, as preserved in the Merseburgh MS., Woden, as might be expected, supplies the place which in the christianized Scottish version, is occupied by "The Lord." The same Charm, as we learn from Grimm, is still used in Norway,—and a somewhat similar one in Sweden. It is said also to exist in the Netherlands.

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* Throb.

THOMAS CLARKSON.

This distinguished philanthropist was born at Wisbeach, on the 26th of March, 1760; received the rudiments of his education at his father's grammar-school there; was removed from thence to St. Paul's School, London; and graduated at St. John's, Cambridge. When 25 years of age—viz. in 1785—Dr. Peckard, the Vice-Chancellor, proposed, as a subject for the Prize Latin Dissertation, the following question: "*Anne liceat invitos in servitutem dare?*" The prize was awarded to Clarkson for this essay;—which was read with brilliant success in the Senate House, Cambridge, in June, 1786. The collection of materials for the essay suggested to the distinguished writer the duty of redressing the wrongs of the slave. With a view to that object, he published it in 1786; and the publication brought him into communication with a small band of philanthropists devoted to the same object—and ultimately with the late William Wilberforce. That eminent legislator—while Mr. Clarkson zealously advocated the question out of doors (exposing his life at Liverpool, and canvassing the French Convention in the heat of the Revolution)—repeatedly and persever-

ingly brought the entire question under the notice of the British Parliament; and, being gradually joined by the most distinguished Parliamentary leaders of both parties, finally carried the measure of total abolition at the termination of the Fox-Grenville ministry of 1807.

The untiring labours of Thomas Clarkson were then renewed, in conjunction with the same illustrious band of philanthropists—now augmented by the addition of many celebrated names—to obtain the suppression of that branch of the parent evil embodied in colonial slavery. The struggle was fluctuating and of long duration: but the object of Thomas Clarkson and his friends was finally crowned with success by the Emancipation Act of 1838—which liberated 800,000 slaves, and awarded twenty millions of money as compensation to their masters. Age and declining health had latterly prevented the deceased philanthropist from publicly participating in the Anti-Slavery movement which first received vitality from his zeal, energy and talent. His last public appearance was at the Anti-Slavery Convention of 1840, over which the Duke of Sussex presided—and by which he was warmly greeted as the patriarch of the cause. He subsequently received the freedom of the City of London; and his native place of Wisbeach has since placed a testimonial to his merit in the Town Hall. He died, at his residence of Playford Hall, Suffolk, on Saturday last, in the 86th year of his age. Besides his 'History of the Slave Trade,' Mr. Clarkson was the author of several literary works—including 'The Portraiture of Quakerism,' the 'Life of William Penn,' &c.;—but all bearing on the one great object to which his heart and life were alike devoted.

THE BRITISH ASSOCIATION AT PORTSMOUTH.

When we shall have disposed of our report of the proceedings at the Southampton Congress, we shall have some remarks to offer on the subject of the disposition which has been exhibited by a portion of the press of this country to depreciate the objects of such scientific associations and the characters of their professors. We hope it is understood by the distinguished foreigners who assembled amongst us on the present occasion,—from countries in every one of which the honour paid to them is accepted as a sign of civilization,—that a large portion of the public are as much pained as we have been at the sort of reception which certain journals have endeavoured to provide for such illustrious guests. It is not, however, so much for the sake of our philosophic visitors that we are pained as for that of our own countrymen. The cause of Science is safe, in the midst of a people who are daily witnesses of its magnificent creations, from any attacks of a jealous or sneering press; but the press is in danger of losing that hold upon the intellects and affections of the people which has been so powerful for their enlightenment hitherto—when it falls thus behind the moral of the times. We are grieved at the impression of inhospitality which these scientific pilgrims will carry back to their several homes;—and far more that an influence which they have no doubt been taught to consider as powerfully and faithfully reflecting the English mind has presented to them a reflection so unflattering—and in this instance so false.

As we have said, however, we reserve some considerations which we have to offer as a corrective, for a later occasion:—but, in the meantime, it is fit that we should point out how this carping and ungenerous spirit acts by endeavouring to fix any defect in the arrangements of a scientific body on Science itself, and visit all the accidents of a popular assemblage on the men whose names and labours furnished the pretence for its assembling. As an instance, the *Hampshire Telegraph*, in reference to the visit of the scientific strangers to Portsmouth, has pandered to the anti-philosophical disposition by a series of idle and unmeaning charges—which a London Morning Journal has thought it worth while to repeat.—"We understand," say these authorities, "that their president not only wrote to the Commander-in-Chief to intimate this visit, but had the extreme modesty to ask the gallant Admiral to meet them on their arrival in full dress uniform. This, of course, was declined; but Sir Charles Ogle communicated to him, not only that boats should be ready for them on their arrival, but that he should be happy to entertain at *déjeûner*, at the Admiralty House, as many of the members as he could conveniently accommodate,—viz., thirty. How was this courtesy requited? By the greatest indecency to the Admiral. Instead of thirty of the party repairing to the *déjeûner*, one hundred and one of them made their appearance at it!—many of whom were neither in the garb nor had the appearance or manners of gentlemen; and who afterwards ranged about the gardens, to the great disturbance of the nice order in which they found them."

To charges so absurd, Sir Roderick Murchison has thought that the defence of his character required an answer.—"In the first place," he says, "I have most positively to contradict the assertion (too absurd, indeed, to be credited by any one who is acquainted with me), that I had 'the extreme modesty to ask the gallant Admiral, commanding in chief, to meet the members of the Association, on their arrival, in full dress uniform.'—The facts are, that, having been very desirous of leaving a favourable impression on the minds of our foreign visitors, I obtained from the Admiralty an order that they might *all* inspect the Dockyard; and, on communicating with Sir Charles Ogle, that gallant officer (who had before personally expressed to me his good will towards the Association) proposed, with his wonted urbanity and hospitality, to receive a limited party at his own house. That party, as defined by me before the General Committee at Southampton, consisted of the foreign *savans*, three or four presidents of sections, and a few officers and other members,—in all certainly not exceeding thirty. As many persons, both belonging to the Association and *wholly unconnected* with it, had repaired on board the Excellent to await our arrival (particularly in the hope of witnessing an experiment with Prof. Schönbein's guncotton), it became very difficult to separate my party from the mass. Afterwards, however, on re-assembling on board the Victory, I repeated the injunction respecting the necessary limits of the *déjeûner;* and stated that those only who had had it notified to them could partake of the Admiral's entertainment. This intimation (as would appear from the result) was not so generally heard as I intended,—owing chiefly to the individuals to whom it was addressed being scattered over the ship; and no one could regret more than myself the influx of many additional persons into the Admiralty House, whilst I was introducing the distinguished men who accompanied me to the Commander-in-chief. But as such incidents will occur on popular occasions, in spite of every precaution, I must say, in justice to the gallant Admiral, who might well have been overpowered by numbers, that he kindly and courteously received them all."

We are not of Sir Roderick Murchison's opinion, that "the defence of his character" demanded any notice of such imputations. The first charge would obtain no credit amongst friendly men—and the second suggested its own answer. But it may be right, nevertheless, that the disposition to state such accusations should be directly rebuked by the President's formal denial:—and it is for the purpose of contradicting a mischievous spirit, rather than defending Sir Roderick Murchison or his friends, that the denial in question is here, on that gentleman's authority, repeated.

LE VERRIER'S PLANET.

We have received, at the last moment before making up for press, the following letter from Sir John Herschel, in reference to the matter referred to in the communication from Mr. Hind given below:—

Collingwood, Oct. 1.

In my address to the British Association assembled at Southampton, on the occasion of my resigning the chair to Sir R. Murchison, I stated, among the remarkable astronomical events of the last twelvemonth, that it had added a new planet to our list,—adding, "it has done more,—it has given us the probable prospect of the discovery of another. We see it as Columbus saw America from the shores of Spain. Its movements have been felt, trembling along the far-reaching line of our analysis, with a certainty hardly inferior to that of ocular demonstration."—These expressions are not reported in any of the papers which profess to give an account of the proceedings, but I appeal to all present whether they were not used.

Give me leave to state my reasons for this confidence; and, in so doing, to call attention to some facts which deserve to be put on record in the history of this noble discovery. On the 12th of July, 1842, the late illustrious astronomer, Bessel, honoured me with a visit at my present residence. On the evening of that day, conversing on the great work of the planetary reductions undertaken by the Astronomer-Royal—then in progress, and since published,*—M. Bessel remarked that the motions of Uranus, as he had satisfied himself by careful examination of the recorded observations, could not be accounted for by the perturbations of the known planets; and that the deviations far exceeded any possible limits of error of observation. In reply to the question, Whether the deviations in question might not be due to the action of an unknown planet?—he stated that he considered it highly probable that such was the case,—being systematic, and such as might be produced by an exterior planet. I then inquired whether he had attempted, from the indications afforded by these perturbations, to discover the position of the unknown body,—in order that "a hue and cry" might be raised for it. From his reply, the words of which I do not call to mind, I collected that he had not then gone into that inquiry; but proposed to do so, having now completed certain works which had occupied too much of his time. And, accordingly, in a letter which I received from him after his return to Königsberg, dated November 14, 1842, he says,—"In reference to our conversation at Collingwood, I *announce* to you (*melde* ich Ihnen) that Uranus is not forgotten." Doubtless, therefore, among his papers will be found some researches on the subject.

The remarkable calculations of M. Le Verrier—which have pointed out, as now appears, nearly the true situation of the new planet, by resolving the inverse problem of the perturbations—if uncorroborated by repetition of the numerical calculations by another hand, or by independent investigation from another quarter, would hardly justify so strong an assurance as that conveyed by my expressions above alluded to. But it was known to me, at that time, (I will take the liberty to cite the Astronomer-Royal as my authority) that a similar investigation had been independently entered into, and a conclusion as to the situation of the new planet very nearly coincident with M. Le Verrier's arrived at (in entire ignorance of his conclusions), by a young Cambridge mathematician, Mr. Adams;—who will, I hope, pardon this mention of his name (the matter being one of great historical moment),—and who will, doubtless, in his own good time and manner, place his calculations before the public.

J. F. W. Herschel.

Discovery of Le Verrier's Planet.

Mr. Hind announces to the *Times* that he has received a letter from Dr. Brünnow, of the Royal Observatory at Berlin, giving the very important information that Le Verrier's planet was found by M. Galle, on the night of September 23rd. "In announcing this grand discovery," he says, "I think it better to copy Dr. Brünnow's letter."

Berlin, Sept. 25.

My dear Sir,—M. Le Verrier's planet was discovered here the 23rd of September, by M. Galle. It is a star of the 8th magnitude, but with a diameter of two or three seconds. Here are its places:—

	h. m. s.	R.A.	Declination.
Sept. 23,	12 0 14·6 M.T.	328° 19′ 16·0″	—13° 24′ 8·9″
Sept. 24,	8 54 40·9 M.T.	328° 18′ 14·3″	—13° 24′ 29·7″

The planet is now retrograde, its motion amounting daily to four seconds of time.

Yours most respectfully, BRÜNNOW.

"This discovery," Mr. Hind says, "may be justly considered one of the greatest triumphs of theoretical Astronomy"; and he adds, in a postscript, that the planet was observed at Mr. Bishop's Observatory, in the Regent's Park, on Wednesday night, notwithstanding the moonlight and hazy sky. "It appears bright," he says, "and with a power of 320 I can see the disc. The following position is the result of instrumental comparisons with 33 Aquarii:—

Sept 30, at 8h. 16m. 21s. Greenwich mean time—
Right ascension of planet .. 21h. 52m. 47·15s.
South declination.. .. .. 13° 27′ 20″. "

* The expense of this magnificent work was defrayed by Government grants, obtained at the instance of the British Association, in 1833.

AURORAL ARCH.

Comrie, Perthshire, Sept. 21.

This evening our sky was again enlivened by an auroral arch (or rather one and a half arches,—for on the present occasion the western limb was double), similar to that seen on the 27th ult.—but rather more faint. This last had also, even when it first made its appearance, a slight inclination to the south; but—unlike the previous one, which remained almost perpendicular during its continuance—that of to-night fell or inclined more and more to the south, till at last it became nearly level and vanished on the horizon. During this time, and for some time after the disappearance of the bow, a beautiful faint light overspread the northern sky. Its southern boundary, instead of gradually merging into the dark blue of the starry sky, was distinctly marked from the north-west point of the horizon up and round by the pole down to the north-east. In consequence, this part of the phenomenon had not so much the appearance of a *dawn* (that is, brighter at the northern point of the horizon, and getting gradually fainter as it extended from that point) as formerly; but was of a nearly uniform brightness throughout its extent—except that here and there a streak of the straight-lined "streamers" brighter than the rest might occasionally be seen shooting across it. The night is inclined to frost—thermometer 44°. M.

Benbridge, near Ryde, Isle of Wight, Sept. 29.

Your correspondent, the Rev. Temple Chevallier, mentions the appearance, at Esk near Durham, soon after eight o'clock on the evening of Monday, Sept. 21, of an auroral arch. On the morning of Tuesday, Sept. 22, one of the coast-guard here told me that he had seen, about eleven o'clock on the preceding evening, "the northern lights very bright indeed over Portsmouth,"—which lies due north of this place. He was not apt at description; but from what he said, I gathered that the light extended to an elevation of about 30°. N. R.

FOREIGN CORRESPONDENCE.

Sept. 24.

I remember I told you that parts of Normandy are so like England that one might almost fancy oneself transported across the Channel. I ought to have said, so like *parts* of England:—or rather, I ought to have said nothing of the kind. These resemblances in countries are like those which the vulgar are so fond of finding in faces;—the coarser and more obvious features are alike, but all the finer traits, which constitute the physiognomy of a man or of a country, are dependent on qualities wholly individual. Never believe anybody who tells you that *anything* is *like* the idyllic beauty of England. To say in what this consists, would be to analyze every object and accident of the landscape; the whole agrarian history and condition of the country; the character and habits of its inhabitants, high and low. Its insularity—scarcely seen or felt by the mass of its inhabitants, and obvious at every turn to the observant stranger, or perhaps still more so to the observant eye long estranged from its scenery and people; its climate—moist and temperate, the nurse of rich and beautiful animal and vegetable life, yet not so favourable as to make *the house* a matter of secondary importance; its long and undisturbed traditions of property and of habits, nowhere else to be found combined with rapid improvement and high material civilization;—but I might go on for an hour, and not exhaust the individualities of England! And, perhaps, nowhere are these individualities to be found more strongly and beautifully expressed than in this county. Between Kent and Picardy, severed but by a narrow channel, there are whole oceans of unlikeness; and a Frenchman desirous of seeing a most characteristic bit of England has it at his own door without the necessity of inhaling one breath of "les brouillards de la Tamise."

Let him land at Folkstone. In that strange little town, things new and old are equally and strikingly English. The antique little houses are so low and small that, to a foreign eye, they seem, at first glance, like baby-houses; yet the English talent for compact arrangement makes them contain a number of accommodations and comforts vainly sought in the more spacious dwellings of the continent. By the side of these, are all the incessant bustle and incessant change of a steam-packet station and a railway station.

If he wishes to see what an English sea-bathing village is like, let him walk to Sandgate. He will, perhaps, echo the astonished exclamation which I heard from one of his countrymen passing by:—"Ah! mais c'est gentil ici!"—as he looks at the neat little lodging-houses, the excellent shops, the clean and commodious baths, the variety of conveyances (including the pretty sailing boats.) He will be, at least, equally struck by the absence of any place of rendezvous—all attempt at a common amusement. No "Établissement de Bains"—no "Salle," no "Table d'hôte," no regular "Promenade."

But the newest of all new sights to the inhabitant of any other country upon earth is the almost unbroken line of vessels that track the water-path to England—seeming as if they followed some attraction as resistless as that of Sindbad's loadstone rock. And so they do. There, round that chalky headland, lies the huge, dusky magnet to which they are all hurrying. There go the brave men whose mission is one of peace and beneficence, yet calls into action as much bravery as the sternest warfare. Every vessel there is the cradle of heroes—heroes to whom danger is as familiar as the aspect of the seas and skies, yet on whose hands there is not one drop of blood. Looking from point to point of the horizon, I have sometimes counted a hundred and fifty sails, great and small. In certain states of the wind, from thirty to forty in a day have anchored before our windows. Then, on a bright moonlight night, the wind changed; and with the rising tide, one after another they spread their dark wings, and flitted silently like bats across the broad track of shimmering light which the moon sent down on the waves. This continual movement on the water is a sight one can see on few parts of the coast of England—and certainly on no other coast in the world.

I would advise my traveller to look at the imposing ruin of Saltwood Castle—a fine specimen of military architecture, of an aspect wholly different from any I have seen among the noble châteaux of France. Or, if it be more to his taste, let him visit the Beechborough hunting-stables and kennel. If he sees with admiration how we lodge our huntsmen, he will be still more struck, a little further on, at the manner in which we house our ecclesiastics. As he drives along an extensive and beautiful plantation, he will be little prepared by his home experience to hear that it belongs to a country clergyman. He may, then, join the railroad at Westenhanger; and try to catch a general impression of the country between that and Tunbridge—as far as it can be caught in that most disagreeable and unsatisfactory way of travelling.

And here I must express my measureless surprise, that a people so fond of ease, quiet and comfort, and so delighting in rural scenes and pleasures, should have resigned itself without a struggle to see no more of its beautiful and pleasant roads, its neat and characteristic towns and villages,—and to be whirled along by a process which offers every conceivable offence to a delicate nervous organization. The bustle, the sense of hurry inseparable from the inexorable adherence to a moment, the feeling of helpless imprisonment, the fearful and head-splitting noises, the equally oppressive and disgusting smells,—I ask myself in vain how an English gentleman, not driven and hunted by the direst urgencies of life—still more, how an English lady, nurtured in a horror of loud noises, bad smells, and the rude hurries and elbowings of the necessitous crowd—can have so readily acquiesced in this exchange? As I drove quietly along the lovely road from Tunbridge to Sevenoaks, drinking in at every step whole draughts of beauty, calmness, fragrance,—every satisfaction of sense and spirit,—I could not help thinking, some succeeding generation will read with envy of the easy carriage, the sound of whose wheels did not drown a whispered conversation, rolling easily along such a road as this; all its movements obedient to the commands of its master;—the last expression of taste, refinement and ease! And all this we have discarded! The driver told me that the post-master at Tunbridge, who formerly had four pairs of horses, has now one; and that this pair had not been out for a week. I know all you have to say about the saving of time; and if I thought the time so saved was at all likely to be valued and usefully employed, I would admit the force of the argument. But you cannot seriously speculate on that result. Taking the average of men and women, their works and ways, one is perfectly safe in saying that very little of their time is more innocently, or even advantageously, employed than in a travelling carriage or stage coach. Before I am enraptured at the so-called economy of time, I wait to see what is done with it. Meanwhile, one has no redress. The whole country is rail-roadized: children play at "train" instead of playing at horses, and the monster which was the terror of flocks and herds no longer disturbs the rumination of a single cow. I beg you to believe that I feel all the infamy and ridicule of my obsolete tastes—but I cannot help it. Railroads are to me, in spite of all the sublime speeches at Lille and at Brussels, essentially the expression of a restless and superficial age. Rather I should say—the adoption of them to the exclusion of all other modes of travelling is so; for nobody, I suppose, denies their utility and importance as means of *getting over* large tracts of ground, when the nature of the country or the necessities of the traveller render everything between the point of departure and that of arrival indifferent. Persons who have taste and leisure for tranquil observation and enjoyment will, however, in time find means to help themselves out of the roaring chaos; and will leave such desperate and breathless speed to those who need it.

But I have lost sight of my Frenchman,—and must resume my office of guide. Knowle is so decidedly one of the sights of England, that it is hardly necessary to recommend a foreigner to visit it. What would naturally strike an intelligent Frenchman is, the perfect preservation of the interior, the furniture, &c., which naturally suggests reflections on the difference between social and political revolutions. Where, in a country which has undergone the latter, can you find this unbroken continuity of possession, extending even to the frailest and most perishable things? Knowle is princely and interesting; but in some respects it disappointed me,—in none so much as the pictures, which are, to say the truth, disgraceful. If one cannot have originals, the copying of pictures is now an art so admirably and cheaply practised that there is no excuse for covering such noble walls with things hardly endurable on a sign-post. There is a portrait of Handel which was new to me: it is striking,—and looks probable. The face is full of genius and inspiration; much younger than the burly portrait from which the common engraving is taken. There are a few other exceptions; but, generally speaking, the pictures create a sort of astonishment in such a place.

Let us, however, turn to the trees; for there we may find astonishment of an entirely contrary kind,—especially if our eyes have long been estranged from the sight of English vegetation. What strikes one above all in Knowle Park is its august simplicity. There are but two things—turf and trees. No shrubberies, flower-gardens, ornamental buildings—not even water. Yet, what variety ever produced a scene equal to this? Everything is large, serene, harmonious,—like the Highest in Art of every kind. As you walk on, your eye constantly rests upon new beauties; but they are only like the various aspects of a perfect statue beheld from different sides. The entire impression is *one*, as that is one—one and transcendent. Those groups of dense, towering, far-reaching masses of verdure,—graceful in all their forms and in all their movements,—exquisite in all their colouring and in all their effects of light and shade; that turf—rich and soft to the eye as to the touch, with here and there a tangled fringe of brake; what a consummate and perfect bit of England is this! All honour to the possessors of Knowle for abstaining from introducing any object that might break the sublime unity of this grandest of woodland scenes!

The house is, owing to its regularity of structure, less picturesque and less interesting than beautiful and melancholy Penshurst. Penshurst has a much greater variety of forms;—towers of various height, size, and material; gables and intersecting lines of all sorts. Nor is it the irregularity alone; but in some places there is a slight air of decay, which adds both to the interest and to the picturesqueness. Perhaps, you may think, the all-illustrious name of Sydney strikes too powerfully on the sentiments not to affect the senses. Yet, certainly, an artist finds far more to do at Pen-

hurst than at Knowle. The trees are very inferior; —but one can make some abatement of foliage, in favour of the associations with "Saccharissa's walk," or with the oak planted at the birth of "Sir Philip" (as the servants call him).

I must take my Frenchman (you will understand that he is intelligent, amiable, instructed—in short, the most agreeable of companions,) through a lovely, winding and quiet lane to another old house, perhaps even more peculiar than either of these noble castles. Ightham Mote House is not a castle;—it is, I should think, the type of an old English moated grange. Whilst I was looking at it, I felt as if I were reading one of Mr. Tennyson's poems. It is a low irregular quadrangle,—completely surrounded by a deep moat of the most transparent water; which washes its walls, and is again inclosed by a low parapet. Over the gateway by which you enter, is the square tower crowned with battlements—the only military feature in the building. Behind the house is the loveliest garden, laid out with the antique symmetry so admirably in keeping with such a building. In the middle, a large, square grass plat or bowling green, of that velvet which many generations have trodden into its exquisite evenness of surface. On one side of it, are terraced flower beds, with a background of beeches; at the end opposite the house is a bright little cascade, filled by the hills above, whose waters divide into two small, clear, square ponds, whence they flow off again to feed the moat. On each side of the cascade is a fine cypress—then a beautiful silver fir; and, behind these again, are large, umbrageous Scotch firs, which tower above the house, and form an admirable and harmonious background to it. When I saw the garden, the beauty and poetry of the picture was completed by a group on the grass plat;—three little girls of different ages, playing with their tame rabbits—shy and graceful,—simple in their dress, and gentle in birth and breeding,—English country gentlewomen in the bud.

This gay and innocent group served to chase the spirits with which Mr. Tennyson had peopled the Moated Grange; and, indeed, the whole house is assuming, under the hands of its present proprietor, an air of comfort and graceful tranquillity dangerous to melancholy fancies. It seemed to me one of the most completely comfortable and enjoyable residences in the world; and I found myself much more in danger of transgressing against the Tenth Commandment at Ightham than at Knowle or Penshurst.

The chapel has, as yet, undergone no repairs. The old panelling is covered with the Tudor bearings. They will, doubtless, be restored by the good taste of the present proprietor—to whose ancestor the house was given by Henry VII. There is a very curious ancient organ in the chapel, bearing the date 1537, I think,—but about the last two figures I am not certain; of the century I am. It is taken in pieces; but none of it appears to be destroyed or missing, and it might afford an interesting study to an organ-builder. At Knowle, where my guide showed me "the second organ that was ever made in England," I mentioned the one at Ightham. The woman exclaimed, "Oh yes, that was the first." If this be really so, it would be worth while to have so great acuriosity put together.

Enough of sights! After all, what strikes one the most, in driving along these English roads and lanes, is, not this or that conspicuous or celebrated object, but the beauty of commonplace things. The winding roads, the hedge-rows, the small clumps of roadside trees,—above all, the cottages and their appurtenances. After the four walls rising bare from the dust, or the mud, of the straight road, and garnished with nothing more ornamental than a dunghill, of which I had lately seen so many, these cottages at first seemed to me a sort of *décoration de théâtre;* and I was ready to ask whether that hard and rude thing called peasant life was really carried on within those rose-encircled bowers? But one soon sees how *real* the whole is,—how essential a part of the life of poor, as well as rich, is this sort of pastoral beauty. There are small farm-houses in this neighbourhood, of no pretension,—models of symmetry and rustic elegance. The large tree, the stacks, the pond, the shed,—all are where they should be. Partly from natural, partly from artificial, causes, there is, too, a delicious variety and harmony of colouring in the landscape. I have been struck by the vast number of very old farm-houses and cottages; brick, of course, but grey with age and lichens, marking the general antiquity of civilization in Kent. I saw, for the first time, hop-picking—a beautiful and gay scene —at a distance! Alas! alas! look not at the garments, still less at the faces, of the actors in it! This is a fresh chapter, and one too long, as well as too gloomy, to enter on now. What and whence is the vast population of vagrants that incessantly haunts and traverses the roads of England?—or, is it, of this part of England? I have seen more of these homeless and lawless looking beings within a few miles here than from one end of France to the other.

The contrast between the dire and reckless improvidence of the English and the all-enduring frugality of the French, is very painful to contemplate. A respectable farmer told me, the hop-pickers on his farm were earning two, three, and even four shillings a day; and, he added, "they are not a bit the better for it; it all goes at the ale-house." Are my countrymen indeed so very near to the beasts that perish? I would fain not believe it. But I do believe that the voluntary and resolute abstemiousness of French peasants, for the sake of security and independence, is a thing of which they are, at present, incapable.

You will tell me, that, too, has its dark side. I know it. So has everything on earth; but the proportions of light and shade are different,—and on that difference all depends.

OUR WEEKLY GOSSIP.

We mentioned, some weeks since, that a subscription had been set on foot, at Sydney, to remunerate Dr. Leichardt for his labours and sufferings in the cause of Australian discovery. We now find it stated by the *Port Philip Paper* that the zealous and enterprising traveller has signified his intention of appropriating the money so subscribed in equipping himself and party for the exploration of the country from Moreton Bay direct to Western Australia. The Doctor purposes, on leaving the latter place, to go to the northward for a while, to endeavour to trace the source of the rivers which flow into the Gulf of Carpentaria. He will then proceed north-west, —coasting along the desert—penetrating right across the "undiscovered country," forming the arc of a circle, to Swan River. "This is a vast subject," says the journal in question. "This second plunge into the wilderness, cutting right through the interior from east to west, will, indeed, be a mighty undertaking; the Port Essington journey will be a farce in comparison. The doctor proposes to set out from Moreton Bay in about six months hence, or sooner if possible. It is not extremely creditable to the Britishers that the two most extraordinary, most valuable voyages of discovery and developement of our colonial resources should have been performed by foreigners—Count Strzlecki and Dr. Leichardt —and instigated solely by their own individual love of science, and equipped at their own expense, or with the promiscuous contributions of a few private friends."

In reference to our remarks made, last week, on the lethargy which had fallen over the project of the Museum of Economic Geology in Piccadilly, we are glad to be informed that there is, now, an exhibition of favourable symptoms. Something like real movement in the way of preparation has, we are told, set in. The worst of the appearances—that, indicated last week, of a waiting on the monumental "man and boy" from Trafalgar-square—is removed from the diagnosis of the case; a number of men being, at length, actively employed in clearing away for the foundation of the building.

The Scotch papers record at some length the death of Alexander Rodger—a person who has obtained some notoriety among our northern friends as a song-writer. 'Behave yoursel' before folk,' is a familiar example; and the *Glasgow Herald* speaks of a satire—'Sawney, now the king 's come,' which appeared first in the London *Examiner*, and reached Edinburgh almost simultaneously with the publication of Sir Walter Scott's welcome, entitled, 'Carle, now the king 's come'—causing great annoyance to the feelings of that illustrious bard's very loyal Muse.

The opening of the Eighth Congress of Italian *savans* took place on the 13th ult.,—the number of members then assembled being about 800. The Marquis de Brignole-Sales occupied the President's chair, and delivered an inaugural address; and the list of the Sections, together with their respective Presidents, is as follows:—Physics and Mathematics—Chev. Jean-Baptiste Armici; Chemistry—Prof. Joachim Taddei; Geology and Mineralogy—Marquis Nicolas Pardo Laurent; Agronomy and Technology—Raphael Lambruschini; Botany and Vegetable Physiology—Chev. Antoine Bertolini; Zoology, Comparative Anatomy, and Physiology —Prof. Antoine Alessandrini; Medicine—Chev. Charles Esperanza; Surgery—Chev. Jean Rossi; Geography and Archæology—Chev. Jules Cordero di San Quentin.—The Prince of Canino brought a message from the Pope—which dispels another of the sleepy spells of the last Pontiff, of somniferous memory—to the effect that his Holiness recognized the value of such associations for the promotion of science,—and saw gladly his subjects of the Roman States engaging in them.—The 27th was the day fixed for laying the first stone of the monument in honour of Columbus; and the king was expected to be present at the ceremony.

At the Scientific Congress at Frankfort, a week or two previously, one hundred and twenty members assembled, under the presidency of Dr. Grimm:—and, on the 18th ult., the Meeting of German Naturalists and Physicians inaugurated, by their assembling, the edifice built by the nobles of Holstein expressly for the holding of scientific congresses. The king had sent from Copenhagen a collection of rare minerals of Denmark, Iceland, Greenland, and the Faroe Islands,—which he placed at the disposal of the Congress.

The French papers mention the death of M. Aimé,—a young scientific gentleman of distinction and director of the Observatory at Algiers,—under melancholy circumstances. While proceeding to Medeah, to establish an observatory at that place, he had the misfortune to fall into a ravine; by which he fractured his leg and several of his ribs. The limb was amputated; but he died a few days afterwards, in the 33rd year of his age.

The Berlin papers mention the death, at the age of 74, of the Baron H. Meme de Minutoli,—a retired lieutenant-general, and the author of a great number of works on the military sciences. His contributions to literature, however, are not confined to professional subjects—the relation of an Egyptian tour, and a variety of inquiries into German history, and into the arts of design and music among the ancients, testifying to the wider scope of his erudition. He has bequeathed to the Royal Museum of Berlin his rich collections of Egyptian, Greek, and Roman antiquities; as well as his library of 40,000 volumes—more than one-fourth of which are in the Oriental tongues.

The Australian papers are filled with accounts of new mineral discoveries. The latest records the finding of the most precious of them all, by Capt. Tyrrell, of the North Montacute Mine, in a shaft undertaken for the discovery of copper ore, for the Victoria Mining Company. "The auriferous vein," says the *Sydney Observer*, "which is described as 'about two inches big,' is composed of a rich ochreous *gossan*, more or less intermingled with native gold, in various forms, and of the most imaginable purity;—some specimens having the appearance of what is called 'dead gold,' and many portions possessing a high degree of brilliancy.—As may well be supposed, this 'crowning' discovery has been the engrossing topic of the week."

MEETING FOR THE ENSUING WEEK.

MON. Entomological Society, 8.

FINE ARTS

FINE ARTS COMMISSION.

THE Sixth Report of the Fine Arts Commissioners has been issued—and is as follows:—

"*To the Queen's Most Excellent Majesty.*

"We, the Commissioners appointed by your Majesty for the purpose of inquiring whether advantage might not be taken of the rebuilding of your Majesty's palace at Westminster, wherein your Majesty's Parliament is wont to assemble, for the purpose of promoting and encouraging the Fine Arts in your Majesty's united kingdom, and in what manner an object of so much importance might be most effectually promoted, humbly report to your Majesty that, having on a former occasion, viz., in our report of the 7th of August, 1845, recommended that six arched compartments in the House of Lords should be decorated with fresco paintings; having, at the same time, expressed our opinion that it would be desirable to proceed gradually with the execution of such fresco paintings, and that, in order to judge of the effect of the work in the locality aforesaid, one fresco should be completed before others should be commenced; we accordingly, and with the sanction of your Majesty, committed the execution of such first fresco painting to Mr. W. Dyce, A.R.A., the subject being that of the cartoon exhibited by him, viz., 'The Baptism of Ethelbert.'

"We have now humbly to report to your Majesty that the said fresco painting was completed in the month of July last, in the centre compartment of the south wall of the House of Lords, and that we have inspected the same.

"The design having been before approved by us, our attention was chiefly directed to the work as an example of fresco painting, a method in a great measure new in this country, and in which we deemed it probable that some defects, arising from want of experience, might be apparent; defects which time and practice might, in future efforts, have removed. We have, however, the satisfaction to state that the work in question presents no evidence of such imperfections; that, on the contrary, it evinces great knowledge of the process of fresco painting and great skill in its application; that, further, as regards the effect of fresco painting in the locality, we consider that it promises to agree well with the architectural and other decorations therein adopted or to be adopted. We, therefore, beg leave to confirm our former recommendation, and to propose that the remaining five compartments should be decorated with fresco paintings when the several designs for the same shall have been approved. And, being also of opinion that the satisfactory effect of Mr. Dyce's fresco is to be referred, in a great degree, to the style of design and colouring which he has adopted, and considering it desirable that a certain conformity of style and execution should pervade paintings employed in the decoration of architecture, and which must be seen together, we deem it important, without wishing to impose undue restrictions on the invention or taste of the other artists commissioned or to be commissioned to execute the remaining frescoes in the House of Lords, that such artists should be recommended to adapt the size of their principal figures, their style of colouring, and the degree of completeness in the execution of their works, so as to make them agree sufficiently with each other and with the specimen already executed.

"We have further humbly to report to your Majesty that having, from time to time, been furnished with drawings by the architect, showing the possible extent to which compartments in the various localities of the palace of Westminster might be decorated with works of art, we are of opinion that it would not be expedient, with reference to the encouragement of British Art, or with reference to the claims which may hereafter be urged for the commemoration of great events, to complete the series of paintings on the walls of the said palace at the present period; that, nevertheless, in accordance with the principles which have already guided us in deciding on the plan of decoration in the House of Lords, viz., with reference to fresco-paintings, stained windows, and statues proposed for that locality, and also in the selection of statues proposed for St. Stephen's Porch, St. Stephen's Hall, and the royal approaches, we conceive it to be the duty of this Commission, for the better guidance of present and future artists, and in order to maintain a character of harmony and unity worthy of such a building, to determine a complete scheme for the future decoration of the palace. We are of opinion that, in determining such scheme, the especial destination of each portion of the building should be attended to; that, in the selection of subjects, the chief object to be regarded should be the expression of some specific idea; and the second, its illustration, by means of some well-known historic or poetic incident adapted for representation in painting.

"We humbly subjoin, as an appendix to this Report, some papers treating in detail various matters connected with the subject of our inquiry.

ALBERT	LYNDHURST
SUTHERLAND	ASHBURTON
LANSDOWNE	COLBORNE
LINCOLN	C. S. LEFEVRE
J. RUSSELL	R. PEEL
PALMERSTON	J. R. G. GRAHAM
MELBOURNE	T. B. MACAULAY
CANNING	R. H. INGLIS
MAHON	B. HAWES
ABERDEEN	S. ROGERS
WILLOUGHBY D'ERESBY	T. WYSE."

"Whitehall, August 4, 1846."

The appendix contains the following documents:—Commissions for frescoes in the House of Lords.—Copy of a resolution passed at a meeting of the Commissioners, on the 5th of June, 1846, respecting decorative works.—Letter from Mr. Etty, respecting colours prepared with wax.—Observations on fresco-painting, by Mr. Dyce.—Communications from Mr. Hamlet Millett, respecting a mode of rendering canvas durable by means of tan.—Communication from Mr. Linton, respecting wax-painting.—And the following notice respecting the competition in oil-painting:—

"Her Majesty's Commissioners having announced that their attention would, in due time, be directed to the means of selecting for employment artists skilled in oil painting, with a view to the decoration of portions of the palace at Westminster, hereby give notice:—Three premiums of 500*l.* each, three premiums of 300*l.* each, and three premiums of 200*l.* each, will be given to the artists who shall furnish oil paintings, which shall be deemed worthy of one or other of the said premiums by judges to be appointed to decide on the relative merit of the works.—The paintings are to be sent, in the course of the first week in June, 1847, for exhibition to Westminster Hall.—The Commissioners reserve to themselves the right of excluding from public exhibition works which shall be deemed by them not to possess sufficient merit to entitle them to such a privilege.—The paintings, not exceeding two in number by each artist, are required to be prepared for the occasion.—The subjects are required to come under the general classes of religion, history, or poetry.—The dimensions are left to the choice of the artists, under the following conditions:—The figures are not to be less than two in number; the size of the nearest figure or figures, in at least one of the specimens by each artist, is to be not less than that of life; but the size of the figures is altogether left to the choice of painters of marine subjects, battle-pieces, and landscape.—The judges appointed to decide on the relative merit of the works may, if they shall think fit, require any artist, to whom a premium shall have been awarded, to execute, under such conditions as they may think necessary, an additional painting as a specimen of his ability, and, in such case, the premium awarded to such artist will not be paid, unless his second painting shall be approved by the judges.—The names of the artists are not required to be concealed.—The paintings will remain the property of the respective artists.—Paintings which may combine appropriate subjects with a high degree of merit shall be considered eligible to be purchased by the nation, in order to be placed in one of the apartments of the palace at Westminster. Religious, poetical, or allegorical subjects, which by judicious adaptation or treatment may have reference to the history or constitution of the kingdom may, as well as strictly historical subjects, be eligible to be so purchased.—The judges to be hereafter appointed to decide on the relative merit of the works, with a view to the award of premiums, will consist partly of artists.—The competition hereby invited is confined to British subjects, including foreigners who may have resided ten years or upwards in the United Kingdom.

"By command of the Commissioners,
"C. L. EASTLAKE, Sec."

FINE ART GOSSIP.—The Duke of Rutland, like another Fabius, has out-generalled all the world by the tactics of passive resistance; and the progress of his equestrian group to its pedestal was, accordingly, in the nature of an ovation. The warrior-duke marched towards his bronze immortality to the sound of his own trumpets; and the statue took possession of its disputed site at the head of an army. No device of sound and size—bustle and dash and the suggestion of power *extrinsic* to the work itself—has been left unemployed to surprise the public verdict, by diverting the popular juries from the true questions in issue. The "most sweet voices" of the crowd have been solicited in anything but Coriolanus fashion. In a word, the long-talked of statue is on its much-canvassed pedestal; and such a practical contradiction would it be to take down what has been elevated with so much cost and display, that we may be sure it will remain there in spite of argument or epigram.—Perhaps there is no other country in civilized Europe in which an offence like this would have been perpetrated in defiance of such a storm of remonstrance. Nor could it have been effected here but by a juggle. The disposition evinced by the House of Commons on the subject would unquestionably have taken such more peremptory form of expression as would have settled the matter in the interests of principle—but for the skilful manner in which Sir Frederick Trench retreated before it; covering his arch-pedestal by a manœuvre that deceived the members into a belief of its intended abandonment. There is no doubt that the Duke of Rutland would have been routed, had his general not thus turned the House's flank. The open field of argument was, in fact, not tenable by his Grace against forces so numerous and well-appointed as those which had taken the field against him,—and a *ruse* only could have saved the Committee's pet project. Perhaps there never was a question of taste on which opinion was more unanimous than it has been in condemnation of the conjunction which has now been carried by a stratagem. One scarcely understands the constitution of a mind which could covet the personal responsibility of setting at general defiance the organs by which the universal public speaks. The hero, whose commemoration lies at the bottom of this dispute, is himself a tolerably obstinate personage,—yet he has more than once seen the wisdom of giving way when he found the world against him. The Duke of Rutland is "made of sterner stuff" than the "iron duke"—inaccessible to reasons and invulnerable by squibs. However, the group is on the arch:—and when so far uncovered by its scaffolding that it can be seen, we shall report the result of the appeal from principles to sight—giving our final opinion at once of the work and its location.

Mr. Hogan's colossal statue of Daniel O'Connell has arrived in Dublin, from Rome; and is described as follows by the *Freeman's Journal*:—"It is a colossal figure of the Liberator, upwards of 8 feet high, of Carrara marble, robed like a Roman tribune, and in the position of haranguing an admiring multitude around him. The likeness is admirable, taken from life, and the work itself is altogether one of the finest and most interesting specimens of Art ever introduced into this country." This statue, together with a bust of Lord Cloncurry, is about to be placed in the Royal Exchange of the Irish capital.

The French Necrology of the week contains the name of the Count Simeon—conspicuous amongst the Peers of France for his love and encouragement of the Fine Arts. He has been long known as the artist's friend—had assembled a remarkable collection of books, pictures, engravings and medals—and had, as our redears will remember, the direction of the Fine Arts at the Ministry of the Interior in the Martignac Administration.

The continental papers convey the melancholy intelligence, that M. Gabriel Guérin, the historical painter, and conservator of the Museum at Stra-

burg, while proceeding in a carriage a few days since, from Bitche to Deux Ponts, was upset into a ravine, in the neighbourhood of Hornbach, in Rhenish Bavaria,—by which he was so seriously injured that he shortly afterwards expired.

Letters from Florence speak of a discovery by Signor Giambeltesta Rossini, a professor at the University of Pisa,—by which another discovery that has made no little noise of late among artists loses its chief interest. Signor Rossini has found, it is said, in the library of the Strozzi Palace a document which establishes that the large picture of the Last Supper discovered, last year, in a convent in that capital is not, as had been decided, the work of Raphael—but that of Neri de Bicci, a Florentine painter; who executed it between 1461 and 1462—twenty-two years before Raphael was born. The document effecting this summary depreciation—for the *name* of Raphael is itself, as everybody knows, a *merit* in the world of Art—is a manuscript journal kept by Neri de Bicci himself—wherein the particulars of the order, work, and payment, are recorded with inevitable distinctness.

MUSIC AND THE DRAMA

Haymarket.—This theatre re-opened on Thursday, with sounds of preparation more than ordinary; and we are bidden to expect great things. Credit, in particular, is taken for the intended original production of five-act pieces; and the names of the authors engaged are advertised. These are, Sheridan Knowles, Douglas Jerrold, Bernard, Bourcicault, Lovell, and Westland Marston. The house has been repaired and re-painted,—and looks very cheerful. The audience was, on the first night, numerous—and apparently delighted. The play revived for the nonce was Colman's comedy of 'The Poor Gentleman'; a play which, during the war, was exceedingly popular—but can never expect to be so again. It was an article manufactured for the stage and the time—and suited both too well ever to suit with equal exactness any other. It might have prospered worse, however, than on the present occasion. Some tradition of the days of George III., it would seem, still lingers among us; and many of the allusions are even yet understood. The wit of the piece, though of the most constrained sort, did not quite fail of its effect. The scene of *equivoque* in the 4th act, where *Lieutenant Worthington* (Mr. Stuart) mistakes *Sir Robert Bramble* (Mr. Farren) and his servant, *Humphrey Dobbins* (Mr. Rogers), for the bailiff and his followers, told, indeed, admirably. If all the drama had been as happily conceived and well written, it might have proved a perennial. This situation is natural,—and based on those substantial qualities of dramatic interest which are of long endurance; while the scenes which are founded on temporary manners soon require interpretation to be relished. Even the texture of such a scene as this, nevertheless, will soon be changed by the reforms now making in the laws relating to debtor and creditor;—but the fundamental interest will remain so long as the present relations of society exist. In the speculations now afloat concerning the New Drama, which is to depend for its incidents on Modern Manners, it should be remembered, by critics on both sides, that it must no more hope for life on account of those incidents and manners than the drama which, scarcely yet half a century old, is already obsolete, should have done. It must not, if it would be immortal, deal with mere surfaces; but, like the Shaksperian comedy, dive deep into the eternal principles of character—trace the differences of disposition, and mark the distinctions of rank and age, by a standard purely moral and intellectual. We know there is much error on this point amongst rising dramatists; and, as there is now an evident tendency with managements to aim at their encouragement, it becomes our duty to warn them against a fatal mistake.—To return. 'The Poor Gentleman' will, probably, advantageously occupy the stage while one of the new dramas advertised is rehearsing. And, in some respect, it deserves to do so; for it is—what we did not expect—well performed. Mr. Farren, Mr. Stuart and Mr. Rogers were more than competent representatives of the magistrate, the half-pay officer, and the surly servant. Mr. Rogers is a new name—or, at least, one little known; he having had but a brief engagement at Covent Garden under M. Laurent's management, and another at the Queen's under Mr. Abington's. We are happy to find that Mr. Webster has attached him to his *corps dramatique*; for, to say the truth, it needed reinforcement—and Mr. Rogers is a valuable acquisition. His performance of *Dobbins* was unmistakeably excellent. Mr. Buckstone was, of course, sufficiently funny in *Stephen Harrowby*, and burlesqued the military mania of the day with real *gusto*. Nor was Mr. Tilbury without merit in *Corporal Foss*. Mr. Webster is not exactly suited to the part of *Dr. Ollapod*. He is somewhat too heavy—and fails to bring out either the vivacity or the vanity; it is some merit, however, to make such nonsense as he has to utter barely tolerable. The actor did more—he rendered it amusing. Miss Fortescue, as *Emily Worthington*, had a small character, which in her hands was somewhat interesting;—while Mrs. Glover, in *Miss Lucretia M'Tab*, was, as usual, excellent.

After the comedy, a sort of property-piece, put together by Mr. Bernard, under the description of "a Sea-side Sketch,"—and called 'The Fortune Hunter, or, a Morning at Margate'—was produced. The title sufficiently suggests the plot. An Irish *Captain Mountgarret, A.H.M.S.*,—which initials, being interpreted, signify, "*At* Her Majesty's Service,"—is on the look out, at Margate, for a wife of fortune; and is inveigled into a flirtation with *Miss Griffin*, (Mrs. W. Clifford)—who turns out to be worth nothing. The aim of the piece is, as we have suggested, to introduce certain stage properties—such as swings, donkey carts, flies, and the other adjuncts of a Margate holiday and public breakfast at Tivoli. This object is effected with much skill:—but the piece has no intrinsic interest; and we fear that considerable ingenuity has been wasted on a worthless subject. The Irishman was, of course, sustained by Mr. Hudson; who apparently realized the dramatist's intention with remarkable and amusing *vraisemblance*.—We have only to add that Mr. Planché is named in the bills as the "acting manager:"—by which, we suppose, is meant that the drama is, here, placed under literary control. The lessee having, now, avowedly "gone in" for new pieces, this is a satisfactory arrangement.

Musical and Dramatic Gossip.—Letters from Berlin mention the production at the Royal Theatre of that capital of the late Michael Beer's tragedy of 'Struensee,'—with an overture and interludes by his illustrious brother Meyerbeer. It is as long since as the year 1826 that, at the request of the Count de Bruhl, then Intendant of the Royal Theatres of Berlin, Michael Beer wrote this piece; the performance of which was, however, interdicted, on the representation of the Danish Government that its subject touched upon recollections painful to the then King, Frederic VI. In 1828 it was played at Munich, with great success—but there, too, after a few performances, withdrawn in deference to the same susceptibility. The decapitation of Struensee took place in 1782; and all who were interested in the series of events to which it belongs having now followed him to the grave, it has been thought that the tragedy (to which these circumstances have given a factitious interest in Germany) may walk in the light of the foot-lamps and hurt nobody. In Berlin, nothing of that imaginary interest has been lost, according to these accounts, by the performance.

The constitution of Mdlle. Rachel has been seriously shaken by the severe fit of illness by which she was overtaken, some months ago, on her way to England,—and the exertions which she so immediately afterwards made to fulfil her engagement there. A residence of twelve months in a southern climate had been recommended as necessary to its re-establishment, and projected by the great actress; when the interests of the dramatic firm to which she belongs interfered,—and Mdlle. Rachel was obliged to conform her treatment to the commercial prescription. A temporary retirement into the country air of France was substituted for the larger scheme—and has been attended with beneficial effects, so far as regards the important object. But consequences less pleasant have also ensued. Probably chafed already by the fetter of an obligation which had prevented her from executing measures on which her health, and perhaps life, were held to depend—and wounded by the selfishness which exhibited the bond at such a time—Mdlle. Rachel has now been informed that a ministerial decision deprives her of her appointments during the entire period of her illness:—and, in the sudden impulse of disgust and irritation, has taken the extreme measure of sending in her resignation as a *sociétaire* of the Théâtre Français. We find a French journal of the Arts attempting to combat this determination of Mdlle. Rachel, by the insinuation that the motive is a very inartistic one. We confess that, for ourselves, we can find in the circumstances a very different motive from the pecuniary one for this indignant proceeding of Mdlle. Rachel.

It is stated, from Leipsic, that MM. Mendelssohn Bartholdy and Moscheles have accepted the functions of professors at the Conservatory of Music in that city;—the first in the class of Composition—the second in that of the Piano.

MISCELLANEA

Paris Academy of Sciences.—Sept. 21.—A communication was received from M. Walchner, having for title 'Observations on Copper and Arsenic, proving that these two metals are to be found everywhere.'—Also, a communication from M. Boussingault on the process and character of digestion.—A paper, by M. Marié Davy, was read on the means of ascertaining, with more certainty than hitherto, the action and intensity of electrical currents.—M. Arago gave an account to the Academy of some of the effects of lightning upon the electrical telegraphs in the United States of America, observing that the facts had been communicated to him by M. Eben Mariam, of Brookly, and were entitled to entire confidence. On the 29th of April of the present year the lightning fell on the wire of an electric telegraph at Lancaster, without melting or breaking it. In the room, however, where the electric battery, by which the line is worked, is placed, a noise was heard like that of the discharge of a pistol, and several sparks were seen. On the 18th of May a telegraph wire was broken by lightning, and several of the posts supporting the line were split, In this case there was a report equal to the discharge of two or three muskets. On the 3rd of June the wire of the telegraph from Washington to Baltimore was so broken that the communications between the towns were suspended for several hours. On the following day, during another thunder-storm, the wire was not snapped, but at every stroke of thunder the hands of the telegraphic instrument moved as if the battery was at work.—M. Pelouze presented a paper on the liquid blue obtained by condensing, by means of frigorific mixture, a compound of hypo-azotic acid and bioxyde acid.—M. Arago addressed some questions to the members composing the section of chemistry respecting M. Schönbein's new discovery of means of preparing a fulminating cotton much more potent than gunpowder.

Extraordinary Meteor.—On the night of the 25th inst., about ten o'clock, a magnificent meteor was observed in the metropolis to shoot with great velocity in a north-westerly direction across the heavens. Its light was so powerful, that for the space of thirty seconds the atmosphere seemed to undergo a transition from darkness to daylight. The light is described as of a lurid blueish tinge. "It first made its appearance in the shape of a globe of fire, a little south of the zenith,—and shot across the heavens towards the north, until it became extinguished after passing a few degrees beyond the polar star; and then the fiery train which it left behind appeared broken into two,—the shorter part being nearest to the nucleus and disappearing first after it, whilst the remainder, which seemed to be more than twenty degrees in length, retained its vivid brightness for about thirty seconds. The most singular feature in the phenomenon was then observed. The train, which had been changing gradually from the bright phosphoric white to a dull red, assumed a serpentine appearance, which soon changed into a semi-circular one, and perfectly resembled a cluster of minute stars,—gradually becoming fainter and fainter, until, after a lapse of nearly five minutes, it quite vanished. The atmosphere was beautifully clear, and several smaller shooting stars were observed.

SIXTEENTH MEETING OF THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE.

[*From our own Correspondents.*]

TUESDAY, SEPT. 15.

SECTION B.—CHEMISTRY.

'On the Corrosion of Iron Rails in and out of use,' by R. MALLETT.—The researches on this subject are still in progress,—experiments are being made upon six different lines of railway. The principal facts already ascertained are:—1st. That there is a real difference in the rate of corrosion between the rails in use and out of use:—that this appears to be connected with their peculiar molecular condition so induced. 2nd. The determination of the complex conditions as to magnetism, which affect rails some time in use, producing both induced and permanent magnetism in the rails, each rail being magnetic with polarity, and having from four to eight separate poles each.

Mr. HUNT stated his confirmation of the experiments of Ritter—that magnetism had the power of protecting iron from corrosion;—to which he referred the protecting influence exerted on the rails in use on railways.

'On the Extent to which Fluoride of Calcium is soluble in Water at 60°,' by Dr. WILSON.

'On the Colouring Matter of Madder,' by Dr. SCHUNK.—This report detailed a series of researches into the composition of the colouring matter of madder; the result of which has been the discovery of many curious properties in the colouring body Alizarine. These have been carefully examined by Dr. Schunk, and the combinations which it effects with the metallic oxides. Dr. Schunk has also discovered two other colouring matters in madder, which are capable of imparting a lively red colour to mordanted cloth.

'On the Application of the Principles of a natural system of Organic Chemistry to the Explanation of the Phenomena occurring in the Diseased Potato Tuber,' by Dr. KEMP.—The object of the author is to urge the consideration of his views on the following grounds:—1st. That, on the 24th of February last, he announced to the Cambridge Philosophical Society, as one of the main deductions from his analyses, that the nature of the morbid affection in the potato tuber consists in an abnormal tendency to premature germination. 2nd. That the truth of this deduction has been proved to the very letter by the progress of the growth of the tuber subsequently; and that attention was drawn to the subject by Prof. Lindley, in the *Gardeners' Chronicle*, on the 1st of August, simply on the grounds that this tendency to premature germination had become a matter of notoriety. 3rd. That, by the application of the natural system of organic chemistry, the outlines of which were brought before the last Meeting of this Association, it was in his power to establish an important principle, which had baffled the genius and resources of the Commission appointed by Government to investigate the subject.

Some remarks followed, which all bore on the importance of autumn planting. Numerous striking instances were adduced in which healthy potatoes had been grown from diseased tubers planted in the autumn.

'Some Inquiries into the Extent, Causes, and Remedies of Fungi destructive in Agriculture,' by J. PRIDEAUX.—1st. *Extent.*—Decandolle's theory of injurious excretions having been opposed by many arguments and experiments, particularly those recently published by Dr. Daubeny, that of Liebig, of specific exhaustion of the soil by plants of one species, leaving it fit for another which required different ingredients, had been generally substituted. Some, however, had taken a middle course, and supposed plants to breed animalcules, which they left in the soil, and which would feed upon other plants of the same species, but not upon those of different ones. The writer also, unsatisfied with the theory of specific exhaustion of inorganic ingredients, from the occasional unaccountable efficacy of ashes and soot, and the inconsistent effects of inorganic manures, had investigated the organic residues on the soil—after wheat, barley, turnips, and potatoes; compared them with the premature decay of wheat (where too often cultivated) in patches, expanding from centres, like fairy rings, and with the notoriety of fungus in the potato disease; and had thence been led to inquire how far such fungous parasites might be the general representatives of Decandolle's supposed injurious excretions. To what extent this may be true, the microscope will best decide, by examining the roots and contiguous soil of plants after harvest, especially those which have ripened seeds.—2nd. *Causes.*—Fungi and mucors were supposed to bear somewhat the same relation to vegetable, as mites and the like to animal, life—a sort of debased or degraded vitality, produced when the organizing vital power was not enough predominant over the disorganizing tendency to decomposition, to effect due assimilation of the nutritious matter presented, but still sufficiently so to prevent decomposition or decay. The constant struggle between the organizing vital force and the decomposing power of chemistry was described, and instances were adduced to show that the invigoration of the vital force by solar light and abundance of proper nourishment, enabled it effectually to repress the decomposing action; whilst, on the contrary, gloom, warm damp, and stagnant electrical air, assisted the disorganizing force, and often produced predatory fungi, which might thus be considered a sort of retarded disorganization. So ripening plants, as their vital powers decay, might generate such parasites; which would explain how they weaken the soil so much more than green crops, in proportion to the contents of their ashes. Such fungi, though not the cause of disease or decay, are effectual promoters of both, and probably the *chief* means of infection, where that also exists.—3rd. *Remedies.*—If further investigation prove fungi thus generated to produce such generally injurious effects, the remedies will be of practical importance. These should be cheap and antiseptic, as well as destructive to fungi. Sulphate of copper with salt, which had been successfully used for seed potatoes, was too costly for spreading over the soil. Fresh lime, the general destroyer of noxious vermin, roots and seeds, would probably answer till rendered inert by carbonic acid. Salt, which appeared more promising, he had found, in some experiments, rather promote than destroy fungi. Lime and salt digested together would eliminate caustic soda, a very active destroyer; and soda ash, with or without lime, would have a somewhat like effect, and ammoniacal gas liquor is perhaps a still more destructive application. But none of these alkalies can be regarded as antiseptic; and the ammonia, when neutralized in the soil, might even promote disorganizing fermentation, where already too strong: and therefore, though they might do, after seed crops, more antiseptic dressings must be used where there is putrescent tendency. Chloride of lime, in solution, he had found useless on diseased potatoes: the powder had been said to answer better, but either would soon be rendered inactive in the soil by the humous matters. Sulphuric acid diluted might succeed where farmers had the means of applying it; and alum, which is of easy application, is a cheap and powerful antiseptic. Dressings of this kind, intended to kill the fungi, and check the disorganizing action, would be turned under in the first ploughing after harvest, independent of the usual manure for nourishing and exciting vital action.

'On the Electrization of Needles in Different Media,' by Prof. C. MATTEUCCI.—Prof. Matteucci has found that needles electrized in air, in oil, or in water, were differently affected by the current—the magnetism varying with the nature of the medium in which the needles were placed. The materials employed were the oil of turpentine, olive oil, alcohol and water—and also plates of mica. The discharge of a Leyden jar was then passed near the needles suspended in these fluids, and the amount of magnetization ascertained.

'On the Influence which finely-divided Platina exerts on the Electrodes of a Voltameter,' by Dr. ROBINSON.—Having occasion, some years ago, to construct a small voltaic battery on Daniell's principle, and wishing to make it as powerful as was consistent with a limited size, I was led to determine its constants by Ohm's theory. Using the voltameter, and grouping observations by the means used in astronomy, I succeeded in this; and, when Prof. Wheatstone's paper 'On the Rheostat' appeared, I wished to confirm by that instrument my results. The facility of its application led me to other examinations—one of which I have ventured to lay before the Section, as it seems to me important in its bearing on a matter lately brought before the scientific world by Grove and Faraday,—namely, the intimate connexion of all, or nearly all, the molecular forces. The galvanometer used by me, being intended to measure powerful currents, consisted of a simple needle suspended in the centre of a massive rectangle of copper. I was in hopes that this simplicity of construction might give some simple relation between the deflection and force:—but it was not so; the denominator of Ohm's expression of the force of the current is:—

$$R+n=\sqrt{\cos\theta}\left\{\frac{A}{\text{tang. }\theta}-B\cos^2\theta\right\}$$

—as given by careful interpolation: but I have not tried whether this can be deduced from theory. The needle's magnetism was constantly examined, and kept at saturation. The rheostat was of Mr. Wheatstone's second kind, slightly modified;—its wire copper $\frac{1}{12}$th of an inch, and 100 turns of it are 70 feet. The value of E, the electromotive force of Ohm,—but, I rather think, the *intensity* of the sum or difference of the chemical affinities exerted in the cells,—is, as in Wheatstone's memoir, expressed by the number of turns of the rheostat required to bring the needle from 45° to 40°. The determinations of it are very consistent, *provided that the magnetism of the needle is constant*, and all the apparatus in given positions. When one of these cells is connected with a voltameter, no decomposition takes place that is sensible, though a feeble current passes. With two, a slight extrication of gas takes place at first, and ceases, though it may be made continuous by reversing the direction of the current. Three act steadily. This is owing to what has been called polarization of the electrodes, but which I would rather name electrolytic resistance. It may be measured as E, in turns of the rheostat, and was, with the particular charges which I then used, $2{\cdot}5\times E$. Obviously, therefore, two cells could not decompose it; for, in that case, by Ohm's theory, the energy of the current—

$$F=\frac{2E-2{\cdot}5E}{2R+n+y}$$

(y being the resistance of the voltameter)—is negative. This antagonist force is, I believe, referred to the accumulation of nascent hydrogen and its per-oxide on the electrodes; and it seemed likely that the evolution of these substances might be promoted by coating the platina with that metal in fine division. This was performed by filling the voltameter with chloride of platina, immersing in it a positive platina wire, and making the electrodes negative. The case was now altered: one cell decomposed, feebly with chlorine compounds as a charge, but decidedly with sulphates; two gave 1·1 cubic inch of the mixed gases in five minutes. With higher numbers the difference is also decided. The quantities given by

3 cells had been	2·5	now	5·5
6 ,, ,,	9·9	,,	11·8
6 double ,,	18·5	,,	25·3

My first impression was, that the electrolytic resistance must have been lessened; for the fact of decomposition implies that n E is greater than e in the formula; but, on examining it, I found that $e=E\times 2{\cdot}49$. Therefore, I infer that the force which thus assists the battery in subverting the affinity of oxygen for hydrogen *is of such a nature, that the galvanometer does not take cognizance of it*,—and, therefore, is not electric. What, then, is its nature? The only explanation which occurs to me is, that the energetic capillary attraction which appears to exist at the surface of this platina coating may be, like heat or electricity, convertible into chemical attraction; or that the film of water in contact with it being decomposed, the heat evolved by its condensing a new one (for the intensity of this capillary force is very great) may, as in Grove's recent discovery, aid the separation of the gases. I may add, that this peculiar action is more energetic at the positive electrode than the other. I removed the coating from one of the plates by filling the voltameter with muriatic acid, and making it positive. The surface retained, however, some of it, which could not be removed. When this was the negative electrode, more gas was evolved than when it was positive. With 2 cells, the quantities are 2·18 and 2·68; with 6 cells, 8·60 and 9·12. It may be added, that, in all

these cases, the resistance of the voltameter itself appears to have been the same, the different measures varying from 38 to 35.

'On the Difference in the Physiological Actions of the Yellow and Red Prussiates as an evidence of their containing dissimilar radicals,' by Dr. Letheby.—In the course of my inquiries into the actions of the various compounds containing cyanogen on the animal economy, I was particularly struck with the great dissimilarity in the effects produced by the yellow and red prussiates of potash. This led me to think it might furnish some evidence upon the side of Liebig's doctrine, that the two salts contain radicals which are dissimilar. To prepare myself for this inquiry, however, I thought it necessary to ascertain what would be the effects of the simple and the double cyanides, and then to experiment with the yellow and red prussiates of similar bases. Of the simple cyanides, I chose those of potassium, sodium, ammonium, mercury, lead, iron, zinc, and silver; and to provide against any fallacy which might arise from the action of the gastric juice, I injected them into the veins or peritoneal cavity. Contrary rather to my expectations, it was found that they were all poisonous; the soluble ones generally acting as quickly as prussic acid—while the others required a little longer time for the developement of the symptoms; but, in all cases, death followed their administration—from two to five grains being sufficient to produce such a result. Of the double cyanides, I chose those of potassium and zinc, potassium and silver, potassium and nickel, and a mixture of cyanide of potassium with cyanide of iron. These also were found to be most poisonous;—proving fatal in doses almost as small as the preceding. Now, these inquiries clearly established two facts:—that neither the simple nor double cyanides could be given even in five-grain doses with impunity. How great, therefore, was my astonishment to find that a class of salts regarded by some chemists as double cyanides should have little or no action upon the animal economy, and that they might be administered in doses of half an ounce without their exhibiting any unpleasant symptoms whatever! I am alluding now to the ferrocyanides; and I experimented with those of potassium, sodium, ammonium, barium, lead, iron, and silver. Moreover, I am disposed to think that the acid, called by Liebig ferrocyanic, which I liberated both by the action of muriatic acid and ether on the potassium salt, and by that of sulphuretted hydrogen on the ferrocyanide of lead, was equally inert. It was true that when the acid was injected into the peritoneum, it produced a slow poisoning; but the effect was evidently due to its decomposition, and to the liberation of hydrocyanic acid—for this compound was easily detected in the abdominal cavity directly after death. I next examined the effects of the red prussiates; and here again, contrary to what would have been surmised from the want of action in the preceding compounds, it was found that they constituted a class almost as poisonous as the simple cyanides. My experiments were made with the red prussiates of potash, and lead, and with a crystalline acid which I obtained by the action of muriatic acid and ether upon the former of these compounds;—each of these was quickly fatal in doses of from ten to forty grains.

'Notice of a Gas Furnace for Organic Analysis,' by Dr. Percy.—This was an ingenious arrangement, by which gas, burnt, mixed with air, through wire gauze, was substituted for charcoal. Its advantages are its extreme cleanliness, and the power which the operator possesses of regulating, at will, the heat,—which is not practicable in the ordinary furnace for organic analysis with charcoal.

Section C.—Geology.

'On the Fishes of the London Clay,' by M. Agassiz.—The Professor stated that since his last report the number of species known from the Paris basin increased; whilst few new forms had been obtained in the London clay. He had, however, been interested in the examination of specimens of the teeth of the saw-fish (*Pristis*); and had noticed some curious changes which they underwent during the growth of the animal. The young teeth were covered with enamel, and had a notch in their posterior margin; whilst in old tusks the bony material alone existed and the margin was entire. On these grounds he considered the three species of Pristis described by Shaw (*P. semi-sagittatus*, *microdon*, and *cuspidatus*) as constituting in reality only one. Widely as these teeth differed in appearance from the flat, pavement-like teeth of the sting-rays (*Myliobatis*), their microscopic structure was identical; and Prof. Müller, of Berlin, had lately shown that the Pristis was not a shark, but belonged to the family of Rays. The Professor then pointed out a peculiarity in the construction of the ventral fins of the Mediterranean Goby, a fish which fixes itself to the bottom by its fins; that act also like springs in enabling the fish to rise from the bottom. He expected soon to be able not only to discriminate every individual bone of any importance in the skeleton of a fish, but also to distinguish the separate fin rays.—M. Agassiz then made some general remarks on the geographical distribution of recent fishes. There were many families—of which the flying-fish (*Exocætus*) was an example—which were found equally in the Indian, Pacific, and Atlantic Oceans. Others, like the sharks and rays, were found in every sea from the Arctic circle to the Tropics, but the species differed on each coast; whilst some families were confined to the Indian seas, and co-extensive only with the great land animals of that region. The Goniodontes were peculiar to the freshwaters of South America; but these were connected with Ganoides of North America; and these again closely allied to the sturgeon, whose affinities have hitherto been little understood. We have here confined to the New World all the representatives of an order widely dispersed over the ancient strata. Looking at the distribution of particular species, like the Silurus, confined to the Danube, Rhine, and a few other freshwaters of Europe, it might be asked by what means it had wandered from one locality to another; to which he would reply that these freshwater fish must have been created in the very streams in which they now live and in the same proportion as now. They leave the egg in so short a time, it was quite impossible they should be transported by birds or otherwise. The fishes in the Paris basin appeared to have lived on a coral reef or rocky bottom, whilst those of the London clay were such as in existing seas are found in shallow seas and muddy waters.

Dr. Buckland supported the view of Prof. Agassiz respecting the origin of the distribution of freshwater fishes; and remarked the improbability that any herbivorous animals were created in pairs only, as they would soon have been exterminated by the carnivorous species. He believed that not only were groups of species created where they are now found, but multitudes of individuals of each species.

'Notice of the Coal of India, being an Analysis of a Report communicated to the Indian Government on this subject,' by Prof. Ansted.—The coal districts of India described in this report are five in number, three in Northern India and one in Cutch, whilst the fifth includes the province of Arracan and the coast of the Birman Empire near Tenasserim. The *coal of Cutch* is not of the carboniferous epoch, is of little importance, and unpromising. The great series of coal-fields of Northern India extends from Hoosungabad, and the Nerbudda river (lat. 23° N. long. 78° E.) in a N.E. direction for 400 miles, to Palamow; thence eastward, for 250 miles, to Burdwan, near Calcutta, and again northwards, 150 miles, to Rajmehal, exhibiting a frequent out-crop of sandstone shales and limestone, with occasional beds of coal of variable thickness and value. Commencing again on the flanks of the Garrow Mountains, near the Bramahpooter, and on the banks of that vast river, similar beds, also containing coal, extend in a north-easterly direction nearly 400 miles. It is thus possible that there exists a range of carboniferous strata for 1,000 miles along the base of the Himalaya Mountains, gradually becoming more distant towards the west.—1. The workable beds of the *Burdwan coal district* are 9 and 7 feet thick respectively. There are thirteen spots at which they are worked, which is usually at the surface, the deepest sinking is 190 feet. The distance from Calcutta is about 90 miles. The quality of the coal is very inferior to that of England. 2. *Central district.* The coal has been worked near Palamow at four places: there are several beds of workable size, but the coal is associated with a good deal of iron, is heavy, and of inferior quality. The coal of the Nerbudda district (Benar coal-field) is about 350 miles from Bombay, and the Nerbudda river is not navigable. At Gurrawarra the coal is said to exist in beds respectively 20, 40, and 25½ feet thick. 3. *Beds east of Calcutta.*—In the district of Silhet, on the south flanks of the Garrow, eleven beds of coal, having a total thickness of 85 feet, have been discovered. This coal is of excellent quality, and belongs to the true carboniferous period. The Assam districts extend about 350 miles, chiefly along the south side of the Burhampooter: in the upper district six coal fields are enumerated, and three in the lower; the coal of the upper district is associated with abundance of clay ironstone. About 80 miles above Biskenath other beds, 6 feet thick, have been worked; the commander of one of the Assam Company's steamers describes it as the best he ever used, and far superior to any in Calcutta. The *Tenasserim and Arracan coal districts* are important from their near vicinity to India. In the former, coal has been worked at four spots,—one of which promises to become valuable; another has been the subject of a report by Mr. Prinsep, who states it to be an admirable coal for gas. The whole is probably of the tertiary period.

Col. Sykes observed that it was of importance to obtain coal for the proposed railways in India, especially as wood was beginning to be scarce in many parts. The report mentioned the occurrence of coal at 90 localities,—most of them in a bed between the Nerbudda and Calcutta. With a trifling exception the whole of India south of this line was destitute of coal.—Mr. Lyell stated that he had lately examined the coal-field of Richmond, in Virginia,—one of the most valuable in the United States. He had obtained fishes from that coal-field, which M. Agassiz referred to the *Oolitic period;* and the plants, which had been examined by Mr. Bunbury, presented an assemblage agreeing with those found at Whitby, in Yorkshire. The coal-field was known to be newer than the carboniferous period; and it contained one bed of coal, 30 feet thick, from which gas had been made,—and it was now becoming of great value. No estimate of the probable value of Indian coal could be formed by comparing it with coal of the same age in Europe.—Sir H. De la Beche observed that it was incorrect to suppose that, in other countries, the most valuable coal would be found in rocks agreeing in age with our own coal-measures. The *Burdwan* coal appeared to be of the same age with the Australian coal, as there were plants common to both.—Mr. Jukes pointed out the identity in direction of the granitic hills of North-Eastern Australia with those of the Malay Peninsula; and the occurrence of coal, at an intermediate point, in Borneo.—Dr. Falconer considered the Burdwan coal-field peculiar:—its plants were all unlike those of Europe; and it contained neither dicotyledonous nor coniferous wood. He thought it might be older than any of our coal-fields.

Mr. W. Sanders exhibited Sections made on the line of the Great Western Railway, between Bristol and Taunton.—The general section represented a distance of 45 miles, on a scale of 33 inches to the mile. It passed first through the junction beds of red marl and lias; then for 6 or 7 miles through new red sandstone, touching once upon the upper beds of the carboniferous limestone. For the next 12 miles there are alluvial tracts, separated by cuttings of new red sandstone. At 21 miles, the Uphill cutting passes through the new red sandstone and lias and then the carboniferous limestone, at the base of which are some masses of trappean rock. The railway then proceeds for 17 miles over an alluvial plain, interrupted only by a cutting through the new red marl and lias at Puriton. From this point to Taunton the course is over a moderately level country of new red sandstone. Four enlarged drawings represented the details of the Ashton, Uphill, and other cuttings. In the section at Pylle, Mr. Sanders discovered remains of Cypris, and a plant (*Naiadites lanceolata*), in the lower lias marls; and in the Uphill and Puriton sections the representatives of the bone bed occurs. Since there are usually several calcareous beds in the lower marls, containing the same fish-scales, shells, &c., Mr. Sanders prefers the classification of Mr. Conybeare, who considered these beds the lowest member of the lias to the separation of the bone bed,—which is only a part of this series, into

the Triassic system, as proposed by M. Agassiz, on account of the nature of its fishes.

'On the Muschet Band, commonly called the Black-band Ironstone of the Coal-field of Scotland,' by Mr. Bald.—This band of ironstone was discovered, about forty years ago, by Mr. David Muschet, of the Calder Iron-works, near Glasgow. It had been frequently passed through; but was thrown away as rubbish till Mr. Muschet ascertained its value,—when extensive mines were opened for working it. Two bands of this ironstone are found in the great coal-fields of Lanark,—one 14 inches thick; the other, which is 73 fathoms lower, is 16 inches thick. The ironstone of the Muschet band is much more easily reducible than the ordinary dry ironstone,—and requires less fuel. In Scotland it appears to be co-extensive with the coal formation. In South Wales, also, it is found; but there is little of it in England or Ireland. Fifty years ago there were only five iron-works in Scotland, comprising about fifteen blast furnaces, which, together, produced 540 tons of iron per week. There are now 100 blast furnaces in action, which produce 12,000 tons per week, or 624,000 tons in the year,—the value of which, at 3*l.* per ton, is 1,872,000*l.* This great increase Mr. Bald attributed to the discovery of the Muschet iron-stone, and to the introduction of the hot-blast. He also mentioned that Mr. Muschet, who is now in his eighty-sixth year, has published a volume on the manufacture of iron, containing an analysis of every ironstone and ore he could obtain; and he trusted his labours would, at least, be recognized in scientific societies, although the pecuniary advantage arising from his discoveries had fallen into other hands.

'On a new species of Hypanthocrinite,' by J. Buckman.—This species differed from the *H. decorus* of Phillips in having its columns flat in front, concave near the apex, and granulated along their whole length. It has also a smaller proboscis, being one-fourth less in the present specimen, which is itself much larger than the usual size of *H. decorus*. Mr. Buckman proposes to call this species *Hypanthocrinites granulatus*;—it was found in the Wenlock shale, in the valley between Hay Head and Walsall, in Staffordshire.

Sir R. I. Murchison wished to state, in reference to the Hay Head limestone, that he considered it presumption on the part of Burmeister to question the correctness of the age assigned to it. It might be allowed him to abolish the genus Bumastus, characterized by the absence of trilobation, and unite it with Illænes—a genus in which the caudal portion was trilobed; but, as regarded geological sections, he (M. Burmeister) was quite incompetent to give an opinion.

'On Graphic Granite,' by M. Jobert.—The inspection of several samples of graphic granite has led the author to conclude, 1. That during the cooling of the granite, the crystals of quartz formed first in the midst of the feldspar. 2. That during the consolidation of the feldspar, the quartz crystals remained in a gelatinous state. 3. That the movement of the mineral matter in veins modified the gelatinous crystals of quartz,—flattening them, and sometimes impressing on them the forms of feldspathic crystals. 4. It is to this change in the form of the quartz crystals that the peculiar aspect of graphic granite is due. He also infers that quartz veins and dykes in granitic rocks may be accounted for by supposing the quartz to continue in a gelatinous state after the consolidation of the feldspar.

Prof. Owen communicated notices of some Fossil Mammalia of South America, which had come under his observation since the publication of his descriptions of the fossil mammalia collected by Mr. Darwin. A new species of the gliriform genus of Pachyderms called Toxodon, was founded on an entire lower jaw, with the intermaxillary part of the upper jaw of a specimen equalling the *Toxodon platensis* in size, transmitted from Buenos Ayres. The new species, which Prof. Owen proposed to call *Toxodon angustidens*, is distinguished by the nearly equal size of the upper incisors, the transverse diameter of the inner or median one being two inches; and by the narrower transverse diameter of the inferior molars. Prof. Owen considered the evidence he had induced as evidences of a second species of Toxodon; confirming, in every respect his ideas of the affinities of the genus expressed by the title, 'Description of the cranium of the *Toxodon platensis*, a gigantic extinct mammiferous animal, referable to the order *Pachydermata*, but with affinities to the *Rodentia*, *Edentata*, and herbivorous *Cetacea*,' under which his original memoir was published in 1838. M. Quatrefages, in his 'Considérations sur les Caractères Zoologiques des Rongeurs,' 4to. 1840, had corrected what he assumed to have been Prof. Owen's allocation of the Toxodon to the Rodent order. M. Quatrefages thought the so-called incisors of the Toxodon to be canines, affirming that their roots extended to the maxillary bones above the first molars; and he regards the Toxodon as having a nearer affinity to the Morse (Trichecus). Prof. Owen referred to his 'Odontography,' p. 411, for a refutation of Geoffroy St.-Hilaire's ideas that the scalpriform incisors of Rodents were canines: and alluded to the enamelled complex molars of the Toxodon in refutation of M. Quatrefages' idea of its relationship to Trichecus.—An almost entire skull of the *Mastodon Andium* had been transmitted to the British Museum from the post-pleiocene beds of the Pampas of Buenos Ayres; its molar dentition was described, and a distinctive character of its tusks, in a strip of enamel two inches broad along their outer sides, was pointed out.—Macrauchenia. To this genus of tridactyle Pachyderms, which is nearly allied to the Palæotherium by the structure of the feet, and the Llamas (Auchenia) in the structure of the neck, Prof. Owen had referred a molar tooth of the lower jaw, on account of its crown being composed of two upright half cylinders of equal height, as in the Palæotherium. A left ramus of the lower jaw, from tertiary deposits of Buenos Ayres, has been received, containing six molar teeth, three true and three false, the last four showing the same form or pattern as the single fossil tooth from Patagonia, demonstrating the resemblance with the lower molar teeth of the Palæothere, except in this difference, viz. the absence of the third lobe in the last molar, by which the generic distinction of the South American Pachyderm was established; and an approach made to the rhinoceros. The Macrauchenia, to which Prof. Owen provisionally referred the fossil in question differed, however, like the Palæothere, from the rhinoceros, in the greater exterior convexity and the equal height of the two demi-cylindrical lobes of which the last premolar and the three true molars were composed, and it further differed from both Palæothere and rhinoceros in the more simple form of the second and third premolars; the enamel is smooth and the dentine compact, and the coronal cement forms a thin layer. The longitudinal extent of six molar teeth was nine inches.—Nesodon, n.g. A genus allied to the preceding, but resembling the Anoplotherium, in the absence of any vacant interspace in the entire dental series, and in the equal height of canines and incisors, was established on the anterior part of the lower jaw and on two molar teeth of the upper jaw, discovered by Capt. Sullivan in an arenaceous tertiary deposit on the coast of Patagonia. The incisors, canines, and premolars of the lower jaw are not only in contact, but overlap each other like scales or tiles, and the molar teeth of both upper and lower jaw are characterized by islands of enamel, whence the generic name proposed. The incisors are six in number. The characters described by Prof. Owen are resemblances to Toxodon, in which, also, the large procumbent incisors overlap each other: the interval between Toxodon and Macrauchenia is evidently partly filled by the present remarkable genus. The extent of the sloping symphysis, the breadth of the lower jaw behind the symphysis, and the depth of the ramus at the beginning of the first true molar, were severally two inches. The quadruped to which these fossils belonged must have been about the size of the llama. Prof. Owen proposed to call the species *Nesodon imbricatus*, in allusion to the tile-like, overlapping arrangement of the anterior teeth.—A second larger species of Nesodon was indicated by four or five detached teeth of the lower jaw from the same deposits. This species, of the size of the zebra, it was proposed to call *Nesodon Sullivani*.—As a check to the undue increase of so many large herbivorous species of the Megatherioid and Pachydermal orders, the great Machairodus, discovered in the caves of Brazil, by Dr. Lund, who first supposed it a hyena, was well adapted. An almost entire skull had been, thence, transmitted to Paris, and had been referred by M. de Blainville to the genus Felis, who had published a figure of it. A specimen of the same, or a closely allied, species, displaying some characters not preserved in the Parisian specimen, had been transmitted from the tertiary deposits of Buenos Ayres. Prof. Owen pointed out several differences establishing the, at least, subgeneric distinction of this remarkable carnivora, which equalled the Bengal tiger in size, and had upper canine teeth of thrice the length. As Prof. Owen could not determine any specific distinction in the present fossil from the *Hyena neogea* or "Smilodon" of Dr. Lund, he proposed to call the species "*Machairodus neogæus*." This, happily extinct, most formidable and destructive of the carnivorous genera, had anciently an extensive geographical range through a great extent of South America, in India, and throughout Europe: fossil remains of different species having been found in old pleiocene deposits in Germany and France, in the newer pleiocene of the Val d'Arno, and in the bone caves of England. Our own ancient *Machairodus latidens* of Devonshire, added to the other species, adds to the propriety of keeping the genus distinct from the typical Felis. Of the gigantic extinct armadilloes, Prof. Owen added to the former species, which he had called *Glyptodon clavipes*, the following; viz., *Glyptodon reticulatus*, *Glyptodon ornatus*, *Glyptodon tuberculatus*, and *Glyptodon clavicaudatus*. An enormous tail of the latter, now in the British Museum, showed several of the ossicles of the dermo-skeletal sheath produced into huge tubercles, the whole resembling the club of the giant Gog or Magog. Prof. Owen thought that the present knowledge of the co-existence with those large herbivorous armadilloes of a gigantic carnivorous species like Machairodus, gave some insight into their need of a complete and strong defence of all the exposed parts of the body and the tail, since they had not the powerful claws with which the Megatherioid quadrupeds might have waged war with the Machairodus. With regard to the Megatherium, the remains recently transmitted confirmed Prof. Owen's ideas of its closer affinity to the sloths than to the ant-eaters or armadilloes; and had enabled him completely to reconstruct both the fore and hind extremities, and correct all the errors in Cuvier's descriptions.

Mr. Edwards communicated a list of the fossils of Bracklestone Bay, Sussex. Of the classes Conchifera, Brachiopoda, and Gasteropoda, there are 161 described species, and 79 undescribed;—74 of which are also found at Barton.

Section D.—Zoology and Botany.

'On the Cultivation of Silk in England.'—A letter was received from Mrs. Whitby, of Newlands, near Lymington, Hants, wherein she gave the Association the result of her experiments, begun ten years ago, on her own estate; and exhibited specimens of raw and manufactured silk, with full details. Mrs. Whitby began by planting various sorts of mulberry trees; and finds the Dwarf Philippine by far the best,—as producing more leaf,—and, from the facility with which its cuttings are struck, being more easily propagated than any other. She finds that, by procuring the eggs of the large Italian sort or four changes, she obtains as great a proportion, and as good a quality of silk, as they do in Italy or France. The testimony of several eminent manufacturers in London, Manchester, and Coventry, attest this. Mrs. Whitby has presented to the Queen twenty yards of rich and brilliant damask, manufactured from silk raised at Newlands. After making allowance for occasional unfavourable seasons, and labour, machinery, outlay of money, &c., it will be found that land laid out for furnishing food for this valuable caterpillar will afford a large profit.

Mr. Ogilby thought this a subject of national importance. The producing silk in this country had hitherto been only pursued as an amusement. Mrs. Whitby had demonstrated the possibility of obtaining a sufficient quantity of food at the right time,—which had hitherto been the great difficulty of growing silk in this country. He hoped the production of silk would be adopted in Ireland. The value of the silk brought to this country was above 2,000,000*l.* annually. Mrs. Whitby's silk was worth as much in the market as the best foreign silks.—Mr. Monck-

ton Milnes inquired if the *Morus multicaulis* would grow in all parts of this country,—and whether anything would grow under it?—Prof. Balfour thought that this species might grow over all England. He thought some other plant might be discovered on which the silk-worm would live as well as the mulberry. This plant belonged to an order which contained a milky juice; and all the plants, such as the lettuce and milk-thistle, on which the worm had been fed contained a milky juice.—Dr. Lankester thought it was not the milky juice alone that the silk-worm required,—as it was well known that the species of silk-worm accustomed to one kind of food would not partake of another. Thus, the silk-worm of India would not feed on the mulberry, nor the silk-worm of Italy on the jujube, and other plants on which the Indian silk-worm fed.—Mr. Patterson referred to some papers read by Mr. Felkin, of Nottingham, before the Association, on the subject of the growth of silk in India;—in which Mr. Felkin had stated that, in his own experiments, worms that had been fed on lettuce died rapidly, even after their food was changed for mulberry leaves.

'Observations on the true Nature of the Tendrils in the Cucumber,' by Dr. Bell Salter.—After referring to various forms of tendril, as in the passion flower, grape vine, &c., the author exhibited a specimen of a monstrous cucumber plant,—from which it appeared that the tendril in this genus and family represents the leaf, while the developed leaf next to it is the first leaf of a sessile axillary branch.

'Notes of New and Rare Animals observed during Cruises in the British Seas since the last Meeting, by Prof. E. Forbes and Mr. M'Andrew.—Shortly after the Cambridge Meeting, Mr. M'Andrew and Prof. E. Forbes commenced an exploration of the Shetland seas by means of the dredge; and examined the great fishing banks forty miles to the west of the mainland. From Zetland they sailed to the Hebrides, where they dredged the Sound of Skye and the coasts of Mull,—and afterwards examined Loch Fyne. During this voyage they procured many new and rare animals, and made careful observations on the distribution of all. Among the chief novelties were the following:—Mollusca. A new Trochus of great beauty, allied to *T. ziziphinus*, but very distinct (*Trochus formosus*); a new Cerithium, equally distinct (*C. nitidum*); *Fursus albus* (Jeffrey's MSS.); a new Odostomia, with very ventricose whorls (*O. ventricosa*); a new Astarte (*A. crebricostata*), and a minute Lucina, probably new. Also *Margarita undulata, Neæra costellata* and *N. abbreviata, Kellia ferruginea*? *Natica Groenlandica, Fusus Sabini, Pleurotoma brachystoma*, and *Leda pygmæa, Arca raridentata*, and *Astarte borealis*, hitherto known only as fossils in this region. They had opportunities of examining the animals of *Littea ancyloides* and *Eulima M'Andrei*, and found them to present generic differences from the forms with which they are now associated. In the Sound of Skye they dredged a species of Orbis,—a genus hitherto unknown in our seas. In a subsequent excursion to the same locality this summer, Mr. M'Andrew observed great numbers of Salpæ. The Briareus and the Appendicularia were taken off Zetland.—Radiata. Numerous new forms of Acalephæ were taken. An Echinus and an Amphiditus, apparently new, were found on the coasts of Shetland; also *Thyone raphanus*. In the Hebrides they discovered a splendid new Comatula, twice the size of the known European species.—Zoophyta. Two genera, Idmonea and Pocellopora, were added to the Fauna of this region of the Atlantic. A new genus of asteroid zoophytes, Sarcodictyon, was established. *Gorgonia viminalis*, and some new forms of Actinea and Tubulipora, were added to the British lists; also some curious Sponges. In the spring of the present year Mr. M'Andrew sailed to the south coast of Ireland, and added to the Fauna of the district the *Brissus lyrifer*, the *Lottia fulva*, and the *Arca raridentata*. There he found *Pleurotoma striolata*, now first announced as an inhabitant of the British seas. This autumn Mr. M'Andrew, accompanied by Prof. E. Forbes, dredged the British Channel between the Land's End and Weymouth Bay. They procured two, if not three, new species of Chemnitzia, a new form of Erilimella (the proposed genus of which *E. M'Andrei* is the type), several undescribed Ascidiæ and Actiniæ, an animal nearly allied to Priapulus, and, probably generically new, and many new forms of Acalephæ. In all these cruises they carefully preserved the Crustacea and Annelida met with,—the former to be examined by Prof. Bell, the latter for Dr. Johnston. When these classes shall have been carefully examined, and such as are new made known and added to the species enumerated, the number of animal forms added to the British Fauna during these researches will probably not fall far short of a hundred.

'On the Crustacea found by Mr. M'Andrew and Prof. E. Forbes in their Cruises round the Coast,' by Prof. Bell.—He arranged his remarks under two heads:—First, on those animals found on a northern cruise, and secondly, those found in their recent south-western cruise. Those found in the first cruise he divided into the Crustacea inhabiting depths under twenty fathoms, and those occupying regions of the sea above that depth. One of the most remarkable animals taken during this cruise was a new genus of crabs, belonging to the fossorial type of that class, and to the family Thalassinideæ. It was taken in 180 fathoms water; and its structure was in accordance with the habit of an animal living at so great a depth in the ocean, for it possessed very feeble organs of vision, and he questioned if it had the power of seeing at all. During the south-western cruise, an interesting animal had been added to the British Fauna—the *Portunus longipes* of Risso.—Mr. Austin expressed his sense of the importance of these dredging operations to the science of Geology. It was not till they knew accurately what was the present state of the world, that they could argue correctly with regard to the past.

Mr. R. Patterson exhibited specimens of Ascidians which he had discovered in the links of the chain of the floating bridge at Itchin, near Southampton.

'Additions to the Fauna of Ireland, including Species new to that of Britain,' by Mr. W. Thompson.—These additions comprised about fifty species of vertebrate and invertebrate animals. Those unrecorded in the British Fauna were the purple waterhen (*Porphyrio hyacinthinus*), obtained in the county of Kerry, by Richard Chute, Esq.; the *Tellina baultastina*, and *Pleurotoma striolata*, both known as Mediterranean species—the former procured by Mr. Barlee, the latter by Mr. M'Andrew, on the western coast of Ireland; *Botrylloides albicans*, (Edw.), and *B. rotifera* (Edw.), collected on the coast of Down, by the author; and *Pontobdella lævis* (Blainville). A new Actinia of the genus Corynactis (Allman) was noticed; and two new species of Amorphozoa (Sponges), and a Daphnia, believed to be undescribed, were stated to have been obtained. "*Dysidea papillosa*" (Johnston), whose place in the system had been uncertain, was lately ascertained by the author to be a helianthoid zoophyte, of the genus Zoanthus.

'On the Hybernation of Snails,' by Mr. Rankin.—From the author's observations on the habits of *Helix hortensis*, he concluded: 1. That snails hybernate. 2. That in their state of hybernation they undergo less torpor than some other animals which hybernate. 3. That they are destructive to trees as well as to plants.

'On the Egg-purse and Embryo of a Species of Myliobatus,' by J. Couch.—The author commenced by stating that the egg-purse was found in August 1845, in the refuse of a trawl-boat by Mr. Peach; and was obtained a few miles south of Fowey, in Cornwall. After mentioning how little is known of the egg-cases of the rays and sharks, he minutely described it; and showed the difference between it and others—particularly dwelling on the structure of the surface, it being reticulated, whereas, all the other egg-purses are smooth. In the egg-purse was a living young fish, which proves to belong to the genus Myliobatus, of Cuvier—characterized by having the pectoral expansion separated from the head. These, from the direction of the wings, have been fancifully called sea-eagles. Ruysch,—whose figures are, for the most part, copies from preceding authors without being improvements on the originals, but who, at Plate ix. figure 9, has given one tolerably characteristic—remarks that it has been called "Sea Toad," from the form of the head resembling that creature; and the comparison seems appropriate, from the elevated head with a protuberent and lateral eye. The same author says, that this fish is viviparous;—an assertion which the foregoing account shows to be incorrect.

'On the Marine Zoology of Cornwall,' by C. W. Peach.—Amongst the zoophytes he had added several new to our Fauna—one Actinia new to the British Islands, and named by Dr. Johnston *Actinia Chrysanthellum*. It buries itself in sand under stones in Fowey Harbour;—and has twelve tentacula. Several calcareous Corallines have been also observed, differing from all that are at present figured. He exhibited, also, a beautiful series of the rare *Echinus Flemingii*; and a magnificent specimen of *Echinus Sphæra*, also another large and fine specimen, which, if not a new species, differs much from all others, and requires a careful examination—he had noticed it in various stages of growth. After noticing the Eolides and Annelides, he mentioned the circumstance of having got the *Gymnolepas Cuvieri* from the bottom of a vessel which came into Fowey Harbour in January of the present year; and after minutely describing it, showed that although exposed to the full influence, for one month, of the freshwater which passed down the harbour on the receding tide, it continued to thrive long after the whole of the *Anser anserifera*, or common Barnacle, had ceased to exist.

Prof. E. Forbes made some remarks on the Echini exhibited by Mr. Peach. One appeared to him to be a new species, but it would be necessary to break the specimen to ascertain the point.

Dr. Carpenter gave an account of his researches on the microscopic character of shells, and also the results of his attempts at representing natural history objects by means of photography.

'Recollections of Researches into the Natural and Economic History of Certain Species of the Clupeadæ, Corregoni, and Salmonideæ,' by Dr. R. Knox.—The author stated that his object was to bring before the Association, and afterwards before the Academy of Sciences of Paris, a brief view of the inquiries made by himself and his brother into the natural history of certain important gregarious fishes. His discovery that the food of the Vendace or Vengis, of Lochmaben, consisted exclusively of the minute, or rather microscopic Entomostraca inhabiting the lakes of Lochmaben, was first communicated to the Royal Society of Edinburgh. This discovery, which at the time appeared to the author and to a few others of the highest importance in natural history science had, in his opinion, been misunderstood by the public, and by most naturalists to whom he had spoken;—they adhering to the old opinion that certain fishes, to be afterwards spoken of, preyed on the Entomostraca merely occasionally; at other times on small shell-fish, animalcules, minute or small fishes, &c., just as they could get them: which opinions the author endeavoured to show were contrary to the facts. After discovering that fishes so numerous, so productive and of such a size as the Vendace, subsisted solely on one description of food, the Entomostraca,—a sort of food over which man can exercise little control, especially in the ocean,—the author knowing that, up to his time, the real food of the herring and of several other species of fish had never been discovered, prosecuted his inquiries into this important branch. The result was the discovery that, whilst the Vendace lives exclusively on the Entomostraca, the same may be said of the herring;—that is of most of its varieties. Dr. Knox gave an outline of a superior kind of trout, which he thinks has not been described by naturalists: he calls it "The Estuary Trout"—brackish waters being the locality it prefers. Should it prove, on future inquiry, that the brackish water is the limit to its usual, or natural range, it may furnish a means of deciding on some difficult legal questions. As regards the celebrated questions raised by the Drumlanrig experiments, to which his first memoir gave, as he believes, the exciting cause, Dr. Knox thinks it not proved that the salmon smolt,—that is the young salmon,—ever remains longer in the rivers than a few weeks after rising from the gravel; and thinks that the opinions founded on the Drumlanrig experiments are in this respect erroneous. 2nd. As regards the question of the parr, no new fact was added to its previous history by these experiments; the *parr markings*, which may be again made visible on scraping off the scales of the smolt, was a fact well known to anglers; who at the close of the day found it difficult to say which were true parr and which salmon smolts. Mr. Scrope first gave a beautiful

drawing of this fact. 3rd. For at least a hundred years the opinion that the parr was the young of the salmon prevailed universally in Annandale. 4th. Willoughby had proved that the salmon egg may be impregnated by the milt of the parr; an experiment curious enough physiologically, but otherwise of no practical importance. 5th. Mr. Hogg and a great many others had marked the spring parr, and found that they returned to the rivers full-grown salmon. Thus no new fact was added to the natural history of the salmon by the Drumlanrig experiments. The author declined giving a decided opinion as to the real nature of the true parr; but, so far as his observations had yet gone, he believes that there is a fish which may be called the *true parr*, hitherto confounded with many other species having *parr markings*; and that this *true parr* may ultimately prove a hybrid between the salmon or salmon trout and certain species of river trout.

MONDAY.

SECTION G.—MECHANICS.

'On the Comparative Value of the different kinds of Gas Meters now in use,' by Mr. J. Sharp.

Mr. M. Ricardo exhibited a model of his machine for registering the velocity of railway trains. The object of it is to furnish the railway companies with a record of the work done by each train, and the measure in which it has been done. By this means they would be often enabled, in case of any accident, to assign correctly the nature and cause of the accident; and so prevent its recurrence. He also showed the work of a machine for registering the resistance of trains. Some discussion ensued, and several questions were put by the President as to the nature of the machine, which appeared to be satisfactorily answered by the inventor.

'On the Law which governs the Resistance to the Motion of Railway Trains at High Velocities,' by Mr. Scott Russell.—Having on former occasions communicated the results of experimental researches concerning the resistance experienced by floating bodies moving along the surface of water at high velocities, I have thought it not an inappropriate sequel to communicate the general result of a long series of experiments, made partly by committees of this Association, and partly by myself. The subject of the resistance which requires to be overcome in order to give motion to trains at high velocities has been matter of great uncertainty, some dispute, and the cause of several grave errors in practical engineering. Some six years ago a committee of the Association was appointed to make experiments on this subject, and these experiments were at the time a valuable addition to our knowledge. They showed that the resistance at such velocities as 36 miles an hour was much greater than had been supposed—at least double. The committee, however, in concluding their labours, stated that they were not able to deduce from them any law, or semblance of a law; that the resistance increased with the velocity,—but it did not appear to do so according to any simple function of the velocity, neither as the velocity directly, nor as the square of the velocity. Since that time the question has been a *quæstio vexata* among practical men and mathematicians. A paper read at the Royal Society last winter comes to the same conclusion as the old committee of the British Association, viz.—that no law is manifested in the experiments,—of which at high velocities the results are quite anomalous. The consequences of errors on such a point have become now so serious, especially where velocities of 50 or 60 miles an hour are attempted, that it has been reckoned desirable that the question should be, if possible, thoroughly resolved. For this purpose I have undertaken a series of practical experiments, on a large scale, with railway trains of a great variety of size and weight, and at velocities as high as 61 miles an hour. They were made on the South-Western, London and Brighton, South-Eastern, Sheffield and Manchester, and Croydon Atmospheric Railways. I have combined with these the experiments formerly made by the British Association, and some by Mr. Harding on the broad gauge; and it is the result of this great variety of facts which I wish to lay before the Section. The experiments themselves are arranged in the following table:—

No. of Experiment	Uniform velocity maintained in miles per hour.	Resistance in lbs. per ton by Experiment.	Resistance in lbs. per ton by Formula.
1	10	8·40	9·30
2	14	12·60	13·90
3	14	12·60	13·90
4	29	16·50	15·70
5	31	23·30	25·40
6	31	18·20	16·30
7	32	22·50	27·20
8	33	22·50	22·70
9	33	15·63	16·90
10	33	15·96	17·00
11	34	16·60	17·30
12	34	16·95	17·30
13	34	17·70	17·30
14	34	23·30	27·20
15	34	25·00	23·10
16	35	22·50	26·10
17	36	22·50	22·40
18	36	22·40	21·50
19	37	17·50	18·20
20	37	25·00	28·40
21	39	30·00	31·00
22	41	22·99	19·60
23	41	26·78	19·60
24	45	21·70	21·00
25	46	23·10	21·30
26	46	30·31	31·00
27	47	33·70	33·10
28	50	32·90	36·30
29	51	26·40	23·00
30	53	41·70	42·10
31	61	52·60	54·30

These experiments show the great amount of resistance at high velocities; but they also show the apparent anomaly of the results. We have many higher velocities than others with much lower resistances. These are the difficulties in the way of any simple and apparent solution. The method of investigation I have adopted is this—I have taken all the results of experiments, and removed from them, in the first instance, all the questionable experiments. I found it necessary to discard all the experiments made with accelerating velocities, and to retain only such as were made on uniform velocities, in the same circumstances, over a large space; most of my own experiments having a steady uniform velocity over from one mile to six. I have also selected those which were most free from the action of wind—an element of much importance. By thus weeding out the experiments, and taking only the most unquestionable, I simplified the subject very materially. Those which remain are given in the table. In this table the weight of each train in tons is shown, and the number of pounds of force required to keep each ton weight of that train in motion at a given number of miles per hour, is shown by actual experiment. The analysis of those experiments I made as follows:—I take the friction of the axles and wheels as an ascertained quantity, equal in the best conditioned carriages to 6lb. per ton of train. This I conceive we may consider to have been proved by all experiments of friction, including those of Mr. Morin, the latest and best, to be a source of resistance constant at all velocities. This I call friction proper, and I consider it as the first element of resistance. Friction proper, the first element of resistance,—or

[1] $$R_1 = C\,m,$$

where C = 6lb, and m = the mass of the train in tons weight.

The second element of resistance is the resistance of the air to the front of the train. This has been variously estimated, and somewhat erroneously. Some persons have taken for it Smeaton's tables of the force of the wind. But such a table gives a quantity quite in excess; for these tables were made from the force of the wind upon a *thin* plate, a case where the minus pressure behind is added to the plus pressure before the plate; whereas, in the case of the railway train, there is a solid body, whose third dimension extends the whole length of the train. I have therefore taken, not the table of the force of the wind, but a table of the resistance of air calculated from the height due to the velocity, which I have found to represent most accurately the resistance of fluids to bodies passing through them; and I have taken this as the second essential element in the resistance to railway trains. Resistance of the air, the second element:—

[2] $$R_2 = A\,p\,v^2,$$

where A = the area in square feet of the front of the train, and p = weight of a column of air, whose base is a square foot and whose length is the height due to the velocity of one mile an hour; v being the velocity of the train.

After having deducted from the results of the experiments the sum of these two resistances, I have found a large amount still unaccounted for; and I find this quantity to be not only large, but dependent also on the velocity. The question which I now submit to the Section is the determination of the nature and cause of this third element of resistance. The third element of resistance appears by the experiments to increase very nearly as the velocity; simply, that is, it amounts at 10 miles an hour to about 3 lb., at 30 miles an hour to 10 lb., and at 60 miles an hour to 20 lb. per ton. It is, therefore, proportioned to the mass or weight of the train and to the velocity jointly. Other resistances due to velocity, or third element:—

[3] $$R_3 = B\,m\,v,$$

where ½ lb., m the weight of the train in tons, and v its velocity in miles an hour.

Whence the total resistance (R) to any train of any weight moving with any velocity is to be obtained from the formula

[4] $$R = R_1 + R_2 + R_3 = A\,p\,v^2 + B\,m\,v + C\,m.$$

The results of this formula are shown in the last column of the table; and from the close manner in which they follow the experiments through their various and apparently anomalous results, they may be regarded as an approximation to the truth sufficiently close for all practical purposes. The next question discussed was the nature of this third element—resistance. The author attributed it mainly to the concussions, oscillations, frictions and flexures to which all the portions both of the train and permanent way are subject, at high velocity.

Dr. Robinson observed that this was a subject on which we had been for some time very much in want of accurate information; and he was glad it had been taken up by Mr. Scott Russell; who would, he hoped, throw as much light on the resistance to railway trains as he had already done on the resistance to ships moving through the water. He quite agreed with him as to the nature of the first two elements of resistance forming two terms of the formula. He also agreed, to a certain extent, to the existence of the third element, which Mr. Russell represented by the term $B\,m\,v$. But he hoped the experiments would be extended; and that this term, instead of appearing as it now did, would be analyzed into some further elements. He had paid some attention recently to this subject; and had stated his views to the Committee of the Houses of Parliament, before which he had been examined on the atmospheric railway; and he conceived that there existed a term of resistance due to the imbedding of the wheel in the rail, which would be of some such form as $B\,m\,v^3$. There would also, he thought, be another term due to the resistance of the spokes of the wheel, and another due to the adhesion of air to the sides, consisting of two terms,—one increasing as v, and another as v^2. These, with axle furniture, rolling friction, and the other elements he mentioned, would be found to be concealed under the present aggregate $B\,v\,m$; and he sincerely hoped these researches would not cease until the analysis were thus rendered complete.—Mr. Scott Russell concurred in the views of Dr. Robinson, and would not fail to prosecute the subject. He thought it of especial importance from this fact, that the element, or group of elements, represented by $B\,v\,m$, was large, and, practically, very important; but it was also one which the skill of the engineer might very much diminish, by attending to the construction of the permanent way and the improvement of the carriages.

To Correspondents.—A Daughter of Scotland—G. G.—An Old Subscriber—H. W. H.—T. M.—Author of the Outlines—E. H.—received.

A. B.—We have not time to answer the many inquiries similar to those of our Correspondent which are addressed to us. A. B. is recommended to look over 'Bohn's Catalogue.'

Errata.—P. 996, col. 2, l. 35 from bottom, for "imprisonment" read *impingement*—p. 1001, col. 2, l. 44, for "pointed wire" read *pointed magnetic wire*—p. 1004, col. 3, l. 1, for "lugoid" read *hyoid*—same p. and col. l. 25, for "Ohm" read *Oken* and for "Bajanus" *Bajanus*—l. 36, for "montal" read *frontal*.

THE QUARTERLY REVIEW, No. CLVI., will be published on WEDNESDAY NEXT.

Contents.

I. FORTIFICATIONS of PARIS.
II. LORD NUGENT'S TRAVELS in GREECE.
III. The SPANISH LADY'S LOVE.
IV. CONSTANTINOPLE in the FOURTH CENTURY.
V. DR. HOOK on EDUCATION of the PEOPLE.
VI. COLOGNE CATHEDRAL.
VII. GENERAL NOTT in AFFGHANISTAN.
VIII. HOCHELAGA and the EMIGRANT. By SIR FRANCIS HEAD.
IX. CLOSE of SIR ROBERT PEEL'S ADMINISTRATION.

John Murray, Albemarle-street.

Just published,

THE WESTMINSTER REVIEW, No. XC. for OCTOBER, with Index of Nos. LXXXVIII. and LXXXIX.

THE FOREIGN QUARTERLY REVIEW, LXXV. for OCTOBER, with Index of Nos. LXXIII. and LXXIV.

Contents.

1. Principles of Taxation: M'Culloch.
2. The Microscope and its Revelations.
3. Architectural Study, &c. (with Illustrations).
4. Free-Trade Prospects; Repeal of the Corn Laws.
5. David Hume.
6. The Water Cure.
7. National Education: Dr. Hook and the Dissenters.
8. Patronage; the Poor Law and Railway Termini Commissioners.

FOREIGN LITERATURE AND CORRESPONDENCE:—Tschudi's Sketches of Peru—Quinet's 'Vacances en Espagne'—Lottrow's 'Vermischte Schriften'—The new Revue Encyclopédique'—Briefe von und an Goethe'—Music in India—Intelligence from Canada, Hamburgh, France, &c. &c.

Mr. George Luxford informs the public that arrangements have been made for combining in the same publication the more useful and attractive of the hitherto distinctive features of the above old established Reviews. Both are now under one management, and appear with nearly the same table of contents; but for the convenience of subscribers desirous of completing their back sets, with the respective Indexes, &c. separate editions will continue to be published for the present.

J. Whitefriars-street, Fleet-street, London.

Just received from Paris, price 2s. 6d.

JOURNAL DES ECONOMISTES, No. 58, for SEPTEMBER, 1846.

Contents.

Position du Problème de la Misère; considérations sur les Moyens le plus efficaces d'élever les Classes Pauvres à une Meilleure Condition Matérielle et Morale.
De Notre Marine Militaire et Marchande.
Les Agents de Change et les Actions des Chemins de Fer.
Du Recensement de la Population.
Exposition à Paris des Produits de l'Industrie Chinoise.
Association pour la Liberté des Echanges.
Le Nouveau Tarif Américain.
Bulletin—Bibliographie—Chronique.

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